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REVISED EDITION OF THE

MOUND-BUILDERS.

By STEPHEN DENISON PEET, Ph. D.

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THE

American Antiquarian

VOL. XXV. MARCH AND APRIL, 1903. No. 2

THE DISTRIBUTION OF MOUNDS.

BY STEPHEN D. PEET.

The world is full of monuments. Some of them are made of earth; other of stone, and others of bronze. Each in their turn indicate a new age and the progress of civilization. The history of the past is made known by these mute witnesses. There is scarcely any land which has not its records kept by these monuments in one form or another, but the earliest of all is that contained in the mounds.

The first striking event in the history of any community, is the first birth or first death, and so it is with the history of the human race. We go back to the earliest record and find the story of the first pair, and soon after the story of the first death. It is conceded that the earliest monuments were placed over the bodies of some distinguished dead. So the earth mounds of every land may be regarded as mementos of tribes and peoples that have passed away. Nothing is more sacred to the human heart than the memory of the dead. It is a sentiment which is as strong among wild Indians as among civilized people.

The earth mound was to them a memento of the past. To us the dearest associations are those which unite the visible with the invisible, the past with the present. And so it has been with others. As generation after generation was gathered to its fathers, the growing mound would increase the sacredness of the spot.

It is thus that we arrive at a motive sufficient for the great pyramidal structures. Human nature, true to its original instincts, thus hallowed its inmost feelings by the great mound. Such is the reason for supposing the pyramids to precede every form of religious edifice. The highest thought of immortality is aided by these monuments of the departed. History and architecture agree in this: that the pyramids are the oldest monuments, but there are tumuli found everywhere in the habitable globe which are much older.

The universality of mounds throughout a large portion of the world, only shows that man everywhere possesses the same religious instincts and uses the same method for honor-

ing the divinities, and shows regard for ancestors in about the same way. It is by following the course of architectural development in the Old World that we find the law which prevailed in the New. The remote period in which the great number of monuments were erected, leads us to pay a regard to the monuments of our own land. It may be that if we better appreciated the feelings which exist in all hearts and homes, we would look upon the mounds that surround us, with a greater sense of their sacredness. The record contained in them is not so important as that contained in the monuments of the East, yet the consecutiveness of architecture in both hemispheres, and the singular parallelism seen in both worlds, makes the study of mounds and monuments very important.

In every land we meet with tokens of respect for the dead. We cannot expect to find in the mounds of this country any such record as is contained in those mounds in which many of the ancient cities lie buried; but we may at least ascertain what kind of structures were erected in prehistoric times, and by this means gain a view of the beginnings of architecture even better than in the Old World. The same is true of the beginnings of art, for while certain tokens of the Stone Age have been discovered in the historic lands, yet if we are to learn about the art of the Stone Age we need to examine the relics which are hidden beneath the mounds of the Mississippi valley.

The work of mound exploration has fallen into discredit, because of the motives which have ruled with many; yet there are lessons to be learned even here. It will be remembered that these silent mounds were the result of religious ceremonies, which followed one another through many centuries, and were practiced by many tribes. The many generations have left their record in them, which makes them like the leaves of a book which may well be compared to the "Book of the Dead."

Among the people situated as we suppose the early inhabitants of this country to have been, these contain the only records. The continuity of the same race in the same country, and uninfluenced by any foreign element, continued until the time of the Discovery. There may have been many tribes, but they were all aboriginal. What length of time was required for these successive manifestations we cannot say. We know there were many ages through which architecture struggled in the Old World, and we may expect to find traces of many generations in the New. From the pyramid to the temple, in Egypt, was a far cry which extended through 1,500 years, and it may be that the same length of time elapsed between the beginning and ending of the mound-building period.

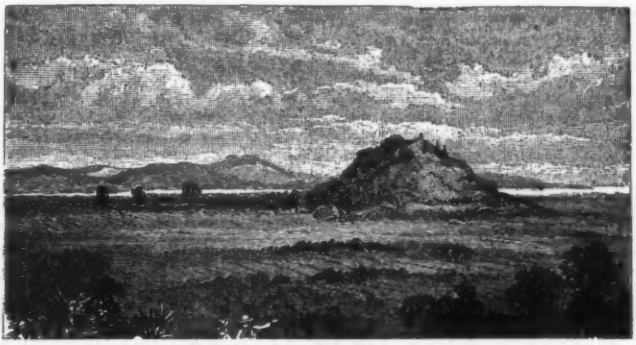
The interval between the earliest grave in Egypt and the building of the pyramid at Ghizeh may have been very long, but it is unknown how long a time elapsed between the first ap-

pearance of man here on this continent and the beginning of the mound-building period.

There were various and succeeding phases of society in the Eastern World before history began to be written. In the Western World no history was really written until the advent of the white man; and yet there are many evidences that a rude civilization had prevailed here long before that time. It is from the careful study of archæology that we are to carry the records back, and learn about the changes and events which occurred.

These massive monuments are before us as the memorials of the past, and we are not to destroy them until we have found the record. The history of mound-building will, then, be appropriate here.

There is a description in Homer of the process of mound-building, which was common in his day, for it was over the



MOUND AT MARATHON, GREECE.

grave of Patroclus that a sacrifice or hecatomb of oxen was made, and that a mound was erected. Xenophon also has made a record of the manner in which those slain in battle were buried, so that we know that the habit of mound-building was common then and had probably survived from the prehistoric into the historic period. It is by this means that we have been able to identify and to know that the site of the battle of Marathon, which was one of the most memorable events in the history of Greece, is the monument of those who fell in that battle.

There is also a mound on the coast of Asia Minor, which is a monument of the Siege of Troy, described by Homer. Schliemann discovered it, and identified it as the one in which was buried the hero, Protesilaus, who led the warriors of Thessaly against Troy, and was the first Greek who jumped on shore. The tradition of antiquity attributed it to him. This tumulus and the gardens around are strewn with fragments of thick black pottery, which are very ancient, and similar to that

found in the first city at Troy. There are other mounds scattered over the globe, which are monuments of events of nearly equal importance, but are not so well known because no Homer or Schliemann has arisen to make known the event, or identify the mound with it.

The large majority of mounds and monuments of the East were erected as places where the remains of the deceased could be buried, and where the personal possessions, especially those which were the most treasured, could be deposited. It is very singular how wide-spread was this custom of depositing the treasures of the deceased along with the body. We speak of the habit of the North American Indian, of depositing the relics with the body of the dead, the most of which were made of stone or copper or shell, and have been preserved, so that through them we can learn about the art of the Stone Age. But the same custom prevailed among the nations of the East, long after the Stone Age had passed away, so that one of the means by which we may learn about the art and social condition which prevailed in the Bronze Age up to the beginning of the Iron Age, is to enter the tombs and draw from them the treasures which they contain.

This practice of burying treasures with the dead prevailed in Egypt as well as Greece. The view of immortality led the Egyptians to make the tomb in the shape of a house and to place a statue in the tomb, but to bury the body below the tomb, and treasures with the body. Even pyramids were built in this way. There was a chamber in the pyramid, but the body was below it. The mound-building habit of the Egyptians reached its highest point in the pyramids.

With the Babylonians the case was different. Many houses and palaces, temples, libraries, and statues have been found buried in the great mounds; no such burials as have been presented by the tomb of Mycenæ, nor such mummies, are numerous in Egypt.

The tombs are built in the form of houses; many of which were conical in shape, and resembled the early houses, rather than those which were occupied by kings; so that there is a double advantage in opening the tombs. We learn about the ancient architecture as well as the early art, and find a record which is as useful as if there had been a written account of the scenes and circumstance of the times. It was on this account that the explorations by Schliemann in Greece are so valuable. It was his acquaintance with the Greek language and his admiration for Homer that led him to dig into the great hill at Hissarlik, and as a result he was able to identify, not only the site of ancient Troy, but to discover the traces of sixteen cities which had arisen upon the spot and gone to ruin, making successive layers, by which the age of the cities could be identified. The relics which were discovered show the progress of civilization, as well as of art and architecture. It was also his

familiarity with classic writers that led him to undertake his expeditions at Tiryns, Mycenæ, and Athens, which resulted in such wonderful discoveries.

The tombs of the ancient kings contained treasures of great value; but a benefit came to the world from his discovery, which cannot be measured in dollars and cents, for the relics of art which were exhumed, have thrown light upon the period which has not ceased to astonish even the best of scholars. They have not only become familiar with the magnificence which prevailed in the palaces of the kings, but have learned much concerning the common things in use among the people. We may say then, that mound exploration in America has received a new dignity, and the relics which are exhumed from them have an additional value from the fact that they can be compared with the treasures taken from the tombs of the East, and so the different stages of progress may be learned.

No. 133—Tumulus of Protesilaus on the Thracian Chersonese opposite the Plain of Troy.

BURIAL MOUND OF PROTESILAUS, THESSALY.

Nor does the value of mound exploration cease with the knowledge of classic history, for the Bible itself has received a new light as a result of mound explorations.

There are very few burial mounds in the Holy Lands, and the relics of extreme antiquity are lacking; but there are mounds and monuments even there, which carry us back to the days of Abraham, or even earlier.

In fact, the Stone Age antedated the Bronze Age and the Iron Age in all parts of the world, and we have a much clearer idea as to the social conditions which prevailed in Egypt, Syria, Babylonia and other parts of the world, after studying the relics and remains of the prehistoric peoples buried in these mounds, than we would have without them.

They belonged to a race totally unlike those whose monuments are discovered in the East, yet the supposition is that they originated in the Old World, and represent the races which once existed there.

Great efforts are being made to learn about the relics of the Stone Age in the Old World, for from them we learn the beginnings of art and architecture, and even of religious symbols, and the efforts which have been so successful here in bringing out the peculiarities of that age, may be of great assistance to the archæologists elsewhere.

The scarcity of the relics of the Stone Age in Greece and Babylonia and Egypt seems to be lamented, yet enough have been discovered to show that that age did really exist in those lands. Perrot and Chipiez say:

When we attempted to draw up the balance sheet of the Grecian Stone Age, we are not beset with an embracing mass of material, such as is seen in Mexico, Scandinavia and other lands. The paucity of objects of this nature stand out all the more clearly from the contrasts. We cannot demand of this country megalithic monuments, menhirs, cromlechs, or dolmens, for the simple reason that none are found in Greece or on the coast of Asia Minor. The pile villages that were brought to light in Thessaly and Macedonia, have turned out to be quite modern, and have no connection whatever with the palaffittes mentioned by Herodotus. In them, moreover, no objects dating back to antiquity have been discovered. There is little reason for seriously examining the stone or flint yard in Accadia or Orchomenus, or the kitchen middens which have been pointed out in Salamis. Still, on the other hand, researches are encouraged by the knowledge that towns that played so brilliant a part in history were often built on much older settlements, so that when sub-structures or foundations were laid bare, instead of the looked-for classical buildings, they frequently present remains of villages in which had lived the earliest inhabitants of the country. Of the different pieces representing the Stone Age, fragments of obsidian and flint cut to a point are numerous and widely distributed. Schliemann's excavations alone have yielded thousands. The largest crop comes from Hissarlik, but Mycenæ and Tiryns furnish fine specimens also. Pieces of obsidian fall under two different heads: slender cones fitted to wood, or bone handled, to be used as a javelin; or thin triangular blades, intended to go through the air and hit the mark at a distance (arrow-heads). Long fine blades, whether as knives or saws are not common here.

There is yet another class of instruments which a wide spread superstition has done much to popularize. The Greeks designated them "Astral Stones." The French and Turks call them "Thunder Stones." We allude to polished stone axes, which are so largely represented in our collections. They represent the *first efforts of a primitive people to emerge from barbarism*, a status which was not so apparent in the several populated centres, as in the clans that were scattered about. Still the employment of stone implements did not cease when metal tubes made their first appearance, for stone was discarded slowly and by degrees. The finest specimens of stone relics have come from Troy, Tiryns, and Mycenæ, towns where metal was applied to all the usages of life.

The passage from a semi-savage state to a settled condition among the Greeks, was effected in their countless migrations to and fro, finally establishing themselves in positions in which they became the Greek nation. Their efforts are visible in scenes far apart from one another, and yet not too distant to preclude their entering into relations of intimacy with each other, and to have bestowed upon their handiwork a general family resemblance. The Hellenic tribes were separated by mountain or sea from one another, and did not owe allegiance to a supreme head. Each obeyed its own chief and lived its own individual and independent life, but the State that had Mycenæ for its capital, appears to have been the most influential among all. It constituted continental Greece, during the four or five centuries that preceded the Doric invasion.

The discoveries made during the last thirty years have disclosed to us at Greece totally forgotten, and older than Homeric Greece, but none

created so deep an impression as those in the Mycenæn metropolis. These far better than any other, show us the means of defining the civilization which was the earliest.

The thought expressed above in reference to the isolated tribes having developed in the course of time into a nation, is important, for it shows that it always takes time for any people to grow into the condition of a nation; and, unless the tribes are surrounded by physical barriers, and protected from incursions, they may never reach this position. This point is important in connection with the Mound-Builder's history.

Schliemann thought he recognized seven periods at Troy, but these were reduced to four superimposed cities. Resting on the rock itself, was the first settlement. In the second period the gate was furnished with a lintel and wooden jambs, and opened into a arrow sloping corridor. Percy Gardener says:

It is supposed by many archæologists that the graves which were dug in the rocks, just within the lion's gate at Mycenæ, were earlier or older than the beehive tombs, the rich spoil of which dazzled Europe a few years ago. It is not unusual to recognize in the graves of prehistoric Greece, two periods, the older marked by rock cut tombs, and the later by beehive tombs.

This would indicate that tomb building began in the Stone Age, though this has been obscured by the accumulations of more recent times. The same fact is true of the Holy Land. There was a mound situated in the south of Palestine, which was supposed to mark the site of the ancient Lachish, but it was a silent heap of earth. No one had undertaken to draw out its secrets until Mr. F. J. Bliss, the son of a missionary, was induced by Prof Petrie to enter into the work of exploration, He found that it contained the records of many ages, and it is now called the "Mound of Many Cities." Its history does not go back to the Stone Age, but leads us to an acquaintance with a condition of the country while the Egyptians were in power, and when a correspondence was carried on between Ramses, the great king of Egypt, and an officer who was stationed at this very city; and a series of letters were discovered, both in Egypt and in Syria, which carries back the history of writing to a much earlier period than had before been known.

The exploration by Mr. Arthur J. Evans has also shown that prehistoric civilization appeared not only in Greece and Asia Minor and Egypt, but extended from Cyprus and Palestine to Sicily and Southern Italy and the coasts of Spain. The colonial and industrial enterprises of the Phœnicians have left their mark throughout the Mediterranean Basin. In all these excavations and researches, the land to which ancient tradition pointed as the cradle of Greek civilization, had been left out of account. Crete was the central island, a half-way house between three continents. Prof. Flinders J. Petrie says:

Here in his royal city, Knossos, Minos ruled and founded the first sea empire of Greece, extending his dominion far over the Ægean isles and coastlands. It was as the first law-giver of Greece that he achieved his greatest renown. He was the Cretan Moses, who every nine years repaired to the cave of Zeus and received from the god of the mountain the laws for his people. Like Abraham, he is described as the friend of the gods. His symbol was the double axe; his animal figure totem was the bull. The great cave of Mount Ida, whose inmost shrine was adorned with natural pillars of gleaming stalactite, leads deep down to the waters of an unnavigated pool. On the conical height immediately above the site and surrounded by a cyclopean enclosure, his tomb was pointed out.

The palace had a long antecedent history, and there are frequent traces of its remodelling. Its earliest elements may go back a thousand years before its final overthrow, approximately to 2,000 B. C., but below the foundations of the later building and covering the whole hill, are the remains of a primitive settlement of still greater antiquity, belonging to the Stone Age. In parts this Neolithic deposit was over 24 feet thick, and everywhere full of stone axes, knives of volcanic glass, dark-polished and incised pottery, and primitive images, such as those found by Schliemann in the lowest strata of Troy.

The wonderful construction of the tombs which have been built in Greece, shows how sacred was the memory of the dead, and how valuable the knowledge of the Stone Age is, and how numerous were the survivals of that age in the specimens of art and architecture of the East, for the very tombs in which the royal treasures were buried, bore the shape of the conical huts which had prevailed in that age. The same is true in Egypt, Babylonia and other cities of the East. It is well known that the mastabah in which the mummies of royal persons were preserved, represented the huts which had prevailed in the Stone Age, and as a proof of it, the piece of pottery which represents a primeval house may be cited. The same is true of Rome, for here the beginning was a hut, for a piece of pottery representing the hut in which the shepherd gave shelter to the two brothers, Romulus and Remus, has been found. It is a hut-urn which resembles that belonging to the Lake-Dwellers of Switzerland during the Stone Age.

The evidences of the Stone Age in Babylonia are lacking, but the explorers are approaching that age. The mounds in the plaza of Babylonia remind us of the Stone Age.

It was in a mound at Nippur that a party of American explorers began their work, and which has not ceased to throw light upon the records of the past. Through their preseverence the date of history has been carried back at least 5,000 years, and it has been discovered that writing was known 2,500 years before the days of Abraham.

Great libraries have been disclosed filled with tablets written in the cuneiform language, from which we have learned about kings and empires which had remained unknown for thousands of years. The Bible student who has not become familiar with the result of these explorations, which have continued up to the present time, is certainly deficient in many things, for these have given new settings for all the characters whose portraits are portrayed, and they assume far more importance than they

ever did before. It was not in the infancy of the world that the Patriarchs lived, nor was it among a rude and barbarous people that the migrations took place, for there have been found beneath the great heaps of earth that stand by the Euphrates and Tigris, the remains of palaces which astonish us in their magnificence and size.

Still, the fact that the stone knife was used in the rite of circumcision, and even human sacrifices had survived in Abraham's day, proves that the influence of the Stone Age was felt even by the Patriarchs as well as by the kings of Moab

The writing dates back to 5000 B. C. By means of inscriptions we have been able to trace history back to this time, but the first construction of which we have evidence, is that of Ur Gur, about 2800 B. C. It was one of the most renowned and revered seats throughout the whole Babylonian and Assyrian period. Dr. Peters says:

> There were mounds which covered the site of an ancient city called Sirpurla, a tributary of Ur. An immense deposit of inscribed clay tablets has been found here. Several low mounds at Tello have also yielded a large number of relics which are important. These differ from those of the Stone Age, in that they show that writing was common, and architecture was in a fair state of advancement. The court of columns discovered at Nippur, also shows that the architecture had passed beyond the Stone Age. Door sockets were also discovered here, and the oldest temple in the world, the arch made out of crude bricks, designed to protect or cover a drain; also pavements and buttresses, causeways, gateways, towers, a ziggurat of several stages, and brick walls of three different periods, pottery of various kinds, clay tablets, brick stamps, tablets that show a series of astrological records, shrines, a mysterious dwelling of the unseen god, emblem of the tabernacle above the clouds, a Babylonian palace of great extent and some architectural pretentions.
>
> Ur was not only the seat of the first temple, but was a great city of the first political importance, dominating Southern Babylonia about 4000 B. C. Eridu, which was at least as old as Ur, is represented by the ruined mounds of Nowawis on the edge of the Arabian Plateau. South of Eridu may be mentioned but one city—Sippara, the ship city, where the records were buried during the flood. Both Ur and Eridu seem to have been at one time located near the sea, but they are at the present time 120 miles from it. From the later deposit we find that the cities would have stood on the shores of the sea about 7,000 B. C., but back of this we must conclude there was the Stone Age, the date of whose begining is unknown.
>
> All of these discoveries convince us that civilization had existed here many thousands of years before history began to be written elsewhere, showing that in this particular locality there was a progress which was equal to the Bronze Age and, perhaps, the Iron Age, as it first began to be knowu in other parts of the world, though the use of iron had not been discovered.

The mounds of Babylonia were, as everybody knows, very different from those of America, for they contained the "ruins of lost empires," and were formed by the gradual accumulations of ruins, and were not made intentionally to cover up the remains of those who had died, or to preserve the relics of those who have lived; but the result is about the same.

The distribution of the mounds and monuments brings us into other parts of the world. It is a remarkable fact that in China we find that the forms of the tents which constituted the

homes of the Chinese while they were in their nomadic state, are still preserved in the shapes of their temples and towers. This has been spoken of by many travellers and scholars. It is even maintained that the method of building the houses is, at the present day, the same as that which prevailed when tents were the only houses.

There are mounds in China which reveal to us the earliest form of civilization which prevailed there. There are, to be sure, other signs which show that the Chinese came up from the Stone Age, and that they resembled the wandering tribes which formerly existed on this continent, and dwelt in tents or huts as they did.

There are mounds in China which remind us of those on our own continent. These mounds preserve the remains of the dead, and are very sacred because of the love of ancestors which is so strong. Confucius, the great philosopher and founder of the Chinese Empire, was buried in a mound, which still stands.

It is probable that mound-building in China began when the people lived in tents, and that the mound in which Confucius was buried was a survival of the custom which had prevailed for many thousands of years, at least there are many mounds in Mongolia which resemble those which are common in America. This does not prove that the Mound-Builders, so called, came from China, though they may have sprung from the Mongolian race; yet it renders it probable that the races of America were descendents from the Mongolians.

There are also mounds in Russia. They are called "Kurgans," but they are filled with the relics of the Stone Age. They show that the mound-building custom prevailed not only among the Slavonic tribes, but also among the Manchurians. Arctic regions seem to have been possessed by a Mongolian race. Dr. Pickering includes the American Indians among the Mongolians. By most writers, however, the American Indians are held to be a distinct race, which from recent discoveries is supposed to have dwelt on either side of Behring Sea, and is called the "Behring Race"; while the Mongolians are restricted to the Tartar tribes, and the Mantchoos, Koreans, Chinese, Thibetans, Siamese, Finns, Laplanders, and Samoyedes; all these tribes nations are supposed once to have been nomads, and many of them were mound-builders.

The Japanese were accustomed to erect mounds over their dead, and these still remain as the monuments of the past, and are very instructive in reference to the history of that people. It appears that there were three different periods in Japan, the first of which was marked by cave-dwelling savages, who have been called "earth-spiders" or "earth-hiders." Ancient records contain many allusion to them. Mr. Romyn Hitchcock has compared them to the pit-dwellers, who were older than the Ainus, as the pottery found in the Pit-dwellings was

not made by the Japanese. It is older even than the tradition of the Japanese, and may be older than the Ainu occupancy. These "earth-dwellers" or "earth-spiders" were migratory, and may have been the same people who left the kitchen-middens in Japan, or they may have belonged to the so-called "ground race," which has been identified as distinct from the Mongolians, but similar to a race which occupied the north-west coast of America, who here built their houses over the excavations in the earth, and covered them with a pile of sods, making them resemble earth-mounds.

Mr. W. H. Gowland, of the Imperial Mint at Osaka, has spent several years in the study of the Japanese mounds. He has divided the burial into three or four classes: First, in under-

BURIAL MOUNDS IN CHINA.

ground burrows; second, simple mounds of earth; third, mounds with rock chambers, or dolmens; fourth, double mounds, or imperial tumuli. The common mounds, or circular heaps, are frequently found among cultivated fields and covered with trees. Those which contained rock chambers are usually built of rough unhewn stones, some of them of immense size. Long entrance passages are seen, through which one may walk upright for thirty or forty feet or more, sometimes lead to the chambers, in which there may or may not be one, rarely two, stone coffins.

When the covering of earth is removed from the burial chambers, it is found that they open through the passages, usually to the south; a fact which conveys the idea that the tomb was built in the form of a house, and that the houses especially those of the early inhabitants, opened to the south

The introduction of stone coffins occurred, according to Von Siebold, as early as 85 B. C., and continued until a late date. One stone coffin seems to be in the shape of a house. The upper part is in the form of a sloping roof, of the mansard style.

The mounds which were the imperial burial places, are interesting because of their history. The plate represents a double mound at Osaka. The length is 485 feet along the top, the width is 78 feet. In the year 646, the size of the tombs which persons of different ranks might build, was specifically stated. A prince might be buried in a vault 9 feet long, 5 feet wide, covered with a mound 75 feet square and 40 feet high. A common functionary could have a mound only 56 feet square and 22 feet high.

The custom of erecting a terraced mound began about the seventh century. These mounds are built up in three terraces. On the top of each was a fence formed of terra cotta pipes about two feet high, connected by wooden poles, which pass through holes about half way from the base. The cylinders were introduced to prevent washing down of the terraces. They were in use till the year 940 A. D., at which time clay coffins became common, which were afterwards changed to stone coffins.

The mounds have yielded a great variety of articles which were buried with the dead, such as iron arrow-heads, iron rings covered with bronze, silver swords, chains, glass beads, mirrors, and other relics. It was an ancient custom among the Japanese to bury the retainers and members of the family of a prince around his grave, a custom which was introduced from China, In the time of an Emperor of Japan, in 30 B. C., his brother died, and they buried all who had been in his immediate service, around his grave alive; but for many days they wept and cried aloud. The Emperor then said: "It is not good to bury living men standing at the sepulchre of a prince," and he proposed making clay figures of men and horses as substitutes.

Mounds are very common in Europe, but are found mainly in the northern parts, along the coast of Brittany, in various parts of Great Britain, and in Denmark and Sweden. These exhibit to us the customs which prevailed in prehistoric times. We find from them that there was a Stone Age in Europe as well as in America, but it gave place to the Bronze Age, which was brought in by immigrants from the Old World, from Eastern Asia, and from the provinces about the Mediterranean. The mounds of Europe exhibit not only the change which occurred when the Bronze Age was introduced, but they show also the different stages of progress which appeared in the Stone Age.

The people who dwelt in Brittany, in Great Britain, in Denmark, in Norway and Sweden were also reached by immigrants from the south of Europe, and the Stone Age in all those

DOUBLE IMPERIAL BURIAL MOUND NEAR NARA—KONABA, JAPAN.

countries gave place to the Bronze Age. Still, there was a survival of the relics and structures of prehistoric times even into historic times. The standing stones of Carnac in France, are near ancient mounds, underneath which are dolmens. There are barrows in Denmark which contain funeral chambers. These were designed mainly to preserve the bodies of the dead.

The progressive steps appear to be as follows: 1. To cover the body with earth and heap stones over the top, to prevent its being devoured by wild beasts. 2. To enclose the body within slabs of stone. 3. To set up over the body a pillar of unhewn stone, or a table of rock on two or more uprights. 4. To build a stone chamber in the shape of a house and cover the body with this. 5. To make the mound in the shape of a boat, to represent the sea-faring habits of the people. 6. To

BURIAL MOUND OF A NORSE SEA KING.

bury the boat with its equipments, with the body of the commander or seafarer in the boat. 7. To make the house itself into a tomb, and cover the tomb with a great mound; the possessions or furnishings of the house being buried with the owner.

By this means we learn the different habits and employments of the people, as well as the different stages through which they passed.

It is worthy of notice that in Scandanavia mounds have been discovered that belong to the Iron Age, some of which were the burial places of the Norse Sea Kings.

One such mound was found in the parish of Tune over a century ago. It was (1865) about 13 feet high with a circumference of from 450 to 550 feet. In the mound was a vessel

which stood on a level with the surrounding surface. Its position relative to the sea suggested that it was ready to be launched upon the element which had been its home, and was still under the command of its master. The articles found near the vessel showed that it was a ship tomb which belonged to the early Iron Age. The ship was carefully drawn out of the river to a place which could be seen at a great distance, and commanded a fine view of the country, as well as the sea. After the space under the ship had been filled with earth, the body of the deceased was placed in the stern where, as captain he had sat when alive. The beads and pieces of cloth indicate that the body was buried with the clothes on. By its side a horse and saddle and harness and snow skates were laid. Thus he had ship, horse saddle, and snow skates with him in the sepulchral tomb, so that he might chose whether he would ride or drive to Valhalla.

Mounds have been discovered on the Northwest Coast, in

BURIAL MOUND OF AN ANCIENT BRITON.

California, and various localities on the western part of the continent, which greatly resemble those found in China, giving the idea that the custom may have been introduced from that direction. No other line has been traced along the Atlantic Coast further north than the St. Lawrence River, though the mounds of the Mississippi Valley greatly resemble those found in Great Britain, as can be seen from examining the cut which represents a burial mound in the Parish of Herefordshire, England.

Now, this review of the mounds and their distsibution throughout the Old World is not intended to furnish a clue to the origin or age of the Mound-Builders of the New World; still, there are some useful hints which are worth considering before the subject is closed:

1. It has been shown that the mounds of many cities are full of layers which have been caused by the destruction of different cities, and this conveys the idea that the stratified mounds of this country furnish the evidence of greater age than some have been inclined to grant to them.

There is, to be sure, a great difference between them, for in the mounds of Asia we count by thousands of years, while in this country we count by hundreds; yet if the beginning of the civilization and the historic period dates back to 10,000 years, this method of computing time would bring the Mound-Building Age back at least a thousand years, and furnish a hint of much greater antiquity.

2. The fact that many of the burial mounds of the Old World were erected as mounuments to the dead, proves the high regard for the departed, and reflects honor upon the Mound-Builders of this country, for it makes it evident that they were govered by the same sentiment, and took pains to place their best treasures alongside the bodies which were buried beneath the silent heaps.

3. The fact that the mounds of Europe and Asia were built by races who were widely scattered, and whose history and race connection are involved in great obscurity, makes it very difficult to identify the Mound-Builders of this country with any particular race, though it opens a wide field which we may study in our effort to learn about the races who first peopled the continent.

4. The fact that the earth mounds both in Europe and in Asia preceded the mounds which contained stone cists and chambers, and belonged to an earlier stage of progress, allies the Mound-Buitders of this country with the earlier or, at least, a ruder people, rather than with the later and more civilized. The peopling of America is a problem which has not been solved, and until it has been, we cannot expect to decide about the race connection and history, or wanderings of the Mound-Builders; yet the recent discovery of the new race called the "Behring Race," may encourage our investigations.

5. The valley of the Mississippi is, however, the great home of the mound builders, and the stage of culture which was reached by them was that of the Stone Age. It matters not, then, what their origin was, for this valley is the place where their culture and social condition are to be studied, and where one phase of the Stone Age begins to be learned.

THE STONE SPUD.

BY CHARLES E. BROWN.

[Reprinted from The Wisconsin Archæologist.]

The class, or more properly, classes of stone implement of which a consideration is attempted in the following pages, have been variously referred to in our archæological literature as spuds, hoe, spade and paddle-shaped implements and spade ceremonials and by other names equally indefinite and undesirable and the only explanation which can be offered for the present title is, that though not entirely satistactory, it has nevertheless the advantage of being the one by which these varied, peculiar and interesting objects are now most familiarly known to the archæologists and collectors of our own state and of the country at large.

It is apparent the term "spud" as at present employed, is being used to define and include with its scope at least two classes of stone implements, which though they resemble each other in a general way, were, if we may judge by the difference in condition, workmanship, and general adaptability, intended for and undoubtedly served quite distinct purposes.

Save that presented by Fowke which embraces only such forms as are represented in the United States National Museum and does not include the Western form, no regular classification of these implements appears to have been attempted. In a like manner, nearly all of the published descriptions of various authors relate only to Southern and Southeastern forms, and but little or no effort appears to have been made to assemble the data or compare them with others.

Such being the case, a re-classification or re-consideration of all of the known types, is both timely and necessary.

In the following convenient classification which is based upon a rather exhaustive study of the available specimens and literature, the writer has attempted to explain to his brother students what are the differences both in form and probable mode of application of the several classes of these implements. This he has supplemented with extracts from the published descriptions, notes, suggestions and theories advanced by leading archæologists, and with such additional data as he has himself been able to collect.

Those who have undertaken similar studies will appreciate the difficulties with which he has had to contend. It is therefore unnecessary to recall them here. The rather broad divisions proposed may hardly be found to include all of the known forms, yet the classification is probably as good as any that can be devised in the present and as yet limited state of our knowledge. The author desires to acknowledge his indebted-

ness to Dr. J. F. Snyder, Mr. Harlan I. Smith, Prof. T. H. Lewis, Prof. W. K. Moorehead, Hon. J. V. Brower, Rev. James Savage, Rev. E. C. Mitchell, Prof. W. O. Emery and others for suggestions and data received, and to his brother students in various parts of the state from their collections.

CLASSIFICATION.

In the first of these classes may be included implements answering the following description:

CLASS A.—Blade broad of a semi-circular, semi-elliptical or somewhat hexagonal or triangular shape, flat or slightly convex, thickest near the handle and ground down to a dull rounded or fairly thin edge in front; shoulders square or sloping, in some cases rounded or barbed; handle generally long, tapering to a blunt point and usually circular or elliptical in section. Some examples have the edge of the blade near the shoulder ornamented with incisions or deep notches, and others also have incisions at the extremity of the handle. These implements are as a class graceful and beautiful objects and represent a high type of aboriginal stone art. They are usually wrought of hard primitive rock, and are generally highly polished. Nearly all are of large size, the largest known example measuring 22¾ inches in length. Of their distribution Clarence B. Moore says: "Unlike so many of our aboriginal relics, this implement is of a type unknown in Europe. It is comparatively rare, though of wide distribution in the United States."

As the greater number of the known examples have been obtained in the Southern and Southeastern United States, that is generally considered to be the natural habitat of this class of stone artifacts. Specimens have been procured in districts as far north as Canada, but there is every reason to believe that these have been brought from some distant Southern or Southeastern locality in the course of aboriginal trade or war relations. It is this class of spade or paddle-shaped spud which we find most frequently described and figured in our archæological literature, and which in their endeavors to understand its precise office has cost so much trouble to our leading archæologists. Some idea of the several theories and suggestions thus advanced may be gleaned from the following extracts:

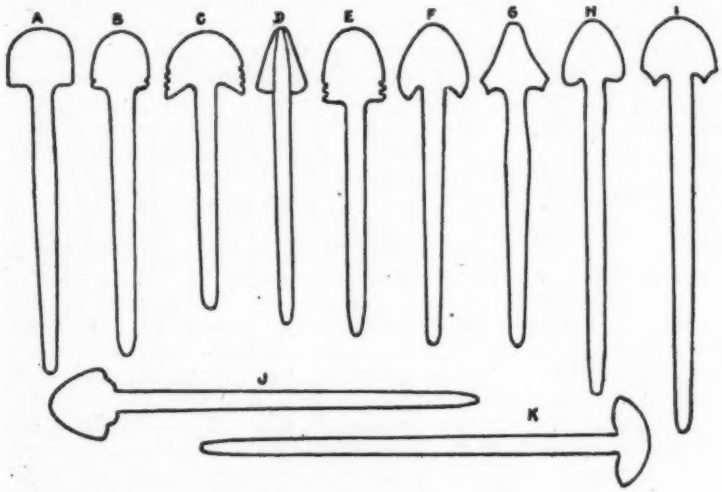
Dr. Chas. Rau* in a chapter devoted to a consideration of "Scraper and Spade-like Implements," figures one and describes another of these implements. He speaks of their resemblance to diminutive spades, but does not assert that they were so employed. One of these (Fig. A) in the collection of Dr. Joseph Jones, now in the University of Louisiana at New Orleans, was taken from a grave mound at Old Town, Tennes-

* Archo. Coll. of U. S. National Museum

see. It is made of greenstone and is 17½ inches in length. The other specimen is from South Carolina.

Col. C. C. Jones* also describes and figures the Jones spud and adds: "We suppose this to have been an agricultural tool."

Gerard Fowke† describes and figures a specimen (Fig. B) fashioned of chloritic slate, from Prairie County, Arkansas. His remarks are intended to apply to both this and the perforated class of spuds. He says: "They are, usually, of a comparatively soft material, carefully worked and polished, and bear no marks of rough usage. On the other hand, they are too large for ornament. Perhaps their office may have been in some ceremony or game." He states that old residents of the Shenandoah Valley claimed that the last century Indians



of that locality used implements of similar pattern for removing the bark from trees.

General Gates P. Thurston‡ figures three of these implements, including a very handsome specimen in his own collection which was found in the stone grave settlement near Nashville, Tennessee. He says of them: "As no other more practical use has been suggested as to them, we call them ceremonial spades or maces." He also describes two others, "one 15¾ inches long, and the other a delicate little type 5½ inches in length," and concludes his description with the following statement: "These implements are too dull for cutting purposes, and must have been too valuable for use as ordinary agricultural or mechanical tools."

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*Antiqitles of the Southern Indians.
†Stone Art. 13th Ann. Rept. Bureau of Ethnology.
‡Antiquities of Tennessee.

Clarence B. Moore* figures several fine specimens in the magnificent reports of his explorations. One of these (Fig. C), 14 inches in length, is made of sassurite and was taken from the Shields mound in Duval County, Florida. Another of polished claystone and 11 inches in length was procured from Mt. Royal (mound) in Putnam County, Florida. The same author credits Thomas Wilson, Esq., for a report of two of these implements, one of blue trap rock, highly polished, found near Columbia, South Carolina, and the other from Kentucky.

He quotes Dr. Joseph Jones, who says: "Several conjectures have been formed as to the use of these singular implements. Some have supposed them to have been used in agriculture, the flat head being employed as a spade and the round handle for making small holes in the earth for the deposit of Indian corn, others believe that they were used to strip the bark from trees; others again, that they were used in dressing hides, in excavating caves, or in felling trees after the wood has been charred by fire. It is possible that they may have been used for all these purposes and also as war-like weapons, since it would be easy te cleave or fracture the human skull with a single blow from one of these stone implements.

Mr. Moore concludes his remarks as follows: "Mr. Thurston reports a number of these implements from various parts of Tennessee, and rightly, we think, classes them as ceremonial. We consider them of too infrequent occurrence to suggest of their employment for any practical use. We have been able to learn of none showing breakage or signs of use, and some are too small in size to render them useful as weapons. Moreever the tally marks on certain specimens connect them with the ceremonial class."

Marquis de Nadaillac† describes and figures a fine specimen of serpentine taken from a mound near the Big Harpeth River, Tennessee, and alludes to the finding of similar implements in the Cumberland Valley and South Carolina.

Dr. Warren K. Moorehead‡ figures a specimen (Fig. D) from Waterloo County, Ontario. It is remarkable for the shape of its blade, which is somewhat triangular. He mentions others, one in the Leslie collection at Chillecothe, Ohio, and another taken from a Scioto Valley mound by Squier and Davis.

In the A. E. Douglas collection in the American Museum of Natural History in New York there is a handsome spud (M 44) of this class (Fig. E.), which is made of dark green slate and comes from Kentucky. It is 15¾ inches in length.

In the Terry collection in the same institution (T 587) there is a smaller specimen of compact slate 8¼ inches in length. It comes from the French Broad River near Dendridge, East Tennessee.

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*Certain Sand Mounds of Duval Co., Florida.
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Mr. W. H. Ellsworth informs me of a fine specimen which was found near St. Augustine, Florida. It was purchased by Mr. A. E. Douglas. It is now with his collection.

Prof. W. O. Emery calls my attention to an Indiana specimen now in the possession of a collector residing near Crawfordsville. He says: "I believe them to be 'ceremonial' in nature, as were the large flint maces of Tenneseee, Southern Indiana and Illinois."

Rev. James Savage of Detroit is the possessor of a specimen which was found near the Ohio-Michigan state line. It is made of slate. The blade, which resembles the half of an imperfect circle, has square shoulders. The cutting edge is sharp and shows much use. The handle has been broken off three inches below the blade.

Prof. T. H. Lewis of St. Paul, the well-known archæologist, has kindly sent me from his notes, sketches of a number of remarkably fine specimens of this class. Several of these are of a larger size than any which have been previously described. None of them are in public institutions. I have endeavored to figure them as accurately as possible.

Figure F comes from Grant County, Wisconsin, near the mouth of the Wisconsin River. It is 16 inches in length, and measures 3½ inches across the blade. A specimen very similar in pattern and 18 inches in length was found in Greeuup County, Kentucky, nearly opposite Portsmouth, Ohio.

Figure G was found in the same locality as that just described. Length 16½ inches. Extreme width of blade 4 inches.

Figure H comes from near Cassville, Grant County, Wisconsin. Length, 19 inches. Extreme width of blade, 3 inches. A similar specimen 17 inches in length was found at La Crescent, Minnesota.

Figure I is from La Crescent, Minnesota. Length, 22 inches. Extreme width of blade, 4 inches.

Figure J, of micaceous slate comes from Oconomowoc, Waukesha County, Wisconsin. Length, 22¼ inches. Extreme width of blade, 3¾ inches.

Figure K comes from La Crescent, Minnesota. It is 22¾ inches in length. Extreme width of blade, 4¼ inches. It is 2 inches in thickness at the handle.

Elsewhere in this article will be found descriptions of other Wisconsin specimens of this class

In closing this chapter the author desires to present the following conclusions and remarks which, though at variance with much that has been written concerning the purpose of this class of implements, are, he believes, worthy of consideration.

He is convinced that further researches in the field and an examination of the thousands of public and private collections of our country will show that these implements are of more frequent occurrence than we entertain any idea of at present. The very considerable amount of additional data which he has

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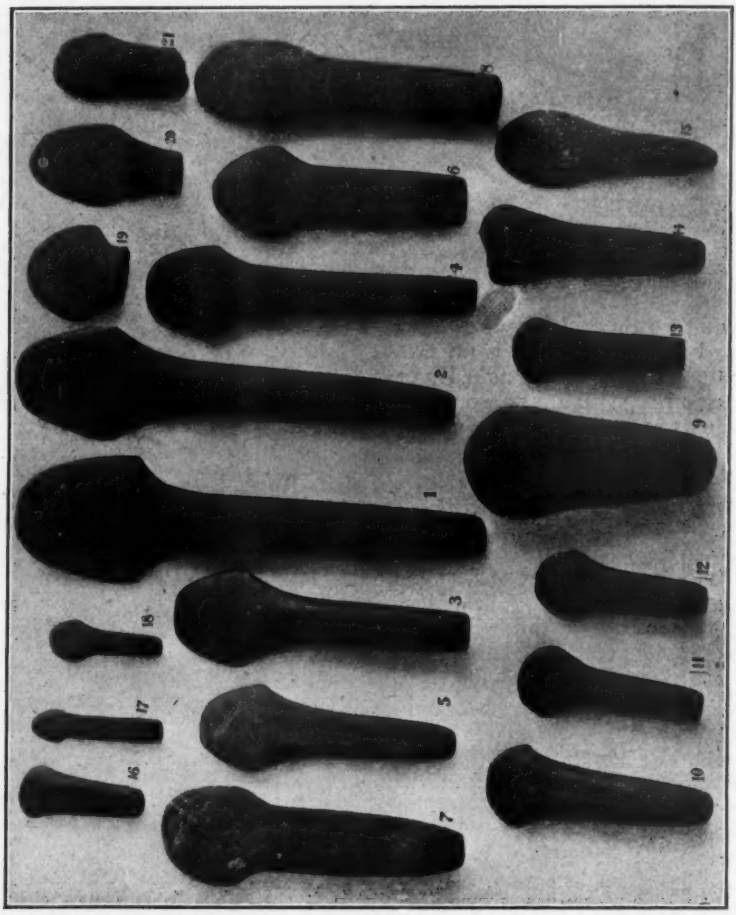
Contrary to what has been supposed some broken and mutilated specimens have been found.

Such specimens as have come to his notice and which he has been able to examine were generally so substantially



STONE SPUDS IN WISCONSIN COLLECTIONS—CLASSES A AND B.

fashioned and their blades so edged, as to suggest their employment for a practical purpose, though possibly not for all or any of those which have been suggested.

The presence of notches or incisions upon the blades and handles of some examples does not imply a relationship with objects of the so-called "ceremonial class" any more than do the flutings upon the polls and blades of a fairly numerous

class of Wisconsin grooved stone axes, which, notwithstanding their often artistic ornamentation, are of equal value for service and present the same evidence of hard usuge that other stone axes have received.

The following extract from a communication received from Dr. J. F. Snyder, the well-known authority, is to the point. He says: "In the study of prehistoric American Indians I am inclined to think our natural propensity to magnify the mysterious and incomprehensible leads us often to ascribe religious or ceremonial motives to commonplace mechanical objects.

"In our ignorance of the early Indians' manner of pursuing the arts we know he practiced, any opinion of the use he made of this 'spade-like' stone must necessarily be little more than mere conjecture. But the hypothesis that it was a tool, employed perhaps in the ceramic industry, appears to me much more plausible than the vague and unsupported "ceremonial"

CLASS B.—Blade generally short, crescent-shaped or oval, convex or flat, reduced to a sharp cutting edge, shoulder when present also partially edged; handle generally of short or medium size, of nearly uniform width, circular, elliptical, less frequently square or somewhat rectangular in section.

Diorite, diabase and granite appear to have been most employed in the making of these implements. Specimens made of slate, sandstone and other materials are known.

They are usually quite smooth and polished. The sides of the handle are frequently pecked or left unpolished, as if to afford a better grip for the hand. The notches and incisions which characterize many specimens of the former class are absent in this. There is a well marked tendency in some of the smaller types toward celt forms.

The blades of a majority of these implements exhibit nicks and fractures and other unmistakable signs of use. Broken specimens are common and there can be no doubt of their having been employed by the aborigines for one or more useful purposes.

Dr. J. F. Snyder, who is well acquainted with these implements, says of them: "These indigenious speciments were evidently tools in common use. It is readily to be seen that they were serviceable appliances for stripping the bark from trees, for skinning large animals, for dressing hides and a variety of domestic purposes."

Hon. J. V. Brower of St. Paul, who has spent fifty years in studying the habits and customs of the Northwestern Indian tribes at their camping grounds and whose work in the archæological field is well known, says: "They were most likely used in the process of making canoes from burned out logs." He has not found them in Kansas, where "boat tools were very scarce, simply because they used bull-boats instead of log canoes.

This, then, is the form of stone implement which has come to be designed by the name of "spud" by Western archæologists, and of which curiously enough little or nothing has been written.

The majority of the implements illustrated and described in this article as Wisconsin types, belong to this class. Dr. Synder and others have informed me of the occurrence of these implements in Illinois; Hon. J. V. Brower, Prof. T. H. Lewis, Rev. E. C. Mitchell and others, of their being found in various localities in Minnesota and North and South Dakota. The writer has seen specimens from Ohio, Michigan and Iowa. It is quite probable that further research will show them to be quite common in nearly all of these states.

In the Terry collection in the American Museum of Natural History, there is an example (T 2011) of this type. It is of limestone and comes from Charlestown, Missouri.

Mr. H. P. Hamilton has a specimen which was found near El Paso, Texas.

CLASS C.—Broad flattish implements, generally of comparatively small size.

Blade broad, nearly circular, elliptical or semielliptical in shape, edge fairly thick and smooth, or thin and sharp, shoulders rounded or sharply pointed; handle narrower than the blade, flat or convex, sides straight or curved, parallel or slightly tapering to the top.

Some specimens have the handle perforated, as if it were intended to attach them to the person by means of a thong passed through the hole. It is quite possible that some of these and of the finer unperforated forms as well, are, as has already been suggested, deserving of being classed with the stone ornaments known as gorgets. Their generally small size, soft material, shape, finish, and the condition of their edges, would appear to make such a separation desirable and proper.

In the making of others, greenstone and other hard rocks have been employed. Many of these are roughly made and have quite sharp cutting edges. There is a tendency on the part of some of these toward a scraper form, and it is quite likely that they were utilized for such or a similar domestic purpose.

There appears to be but little reason for associating any of these implements with the large paddle-form (Class A) as some writers have done. Some examples might be included with the former class (B) as medium types.

Implements of this class are said to be of fairly common occurrence in the South, and specimens are to be seen in various public and private collections and have been described by various authors from Kentucky, Tennessee, Arkansas, Virginia, North and South Carolina, Georgia and Florida. The writer has sketches of several specimens which were found in Ohio.

Mr. W. H. Ellsworth formerly possessed two specimens of this class, one made of slate and the other of red sandstone, which were found near Stafford, Tolland County, Connecticut.

From Prof. Lewis, I have outlines of a perforated type found at Lansing, Iowa, and of unperforated types from De Soto, Vernon County; Soldiers Grove, Crawford County, and La Crosse, La Crosse County, in Southwestern Wisconsin.

He has likewise called my attention to the existence of a class of copper implements of a shape quite similar to some of these. They were found at Lake Chetek, Barron County, Wisconsin; at St. Paul, Minnesota, and at Ontonagon, Michigan. He also states that in the last edition of Pickett's "Alabama" there is rudely pictured a copper spud, which is said to be 18 inches in length, 7 inches in width across the blade, and 3 inches across the handle. There were five other specimens of somewhat smaller size. I have been unable to see this work, or to learn of the present location of these specimens.

THE PEOPLING OF ASIA AND AMERICA COMPARED.

BY STANILAND WAKE.

There are various facts which support the idea that the civilization exhibited by the native population of the western portion of the American Continent, at the time of the discovery by the Spaniards, possesed features which required them to have been at some time or other in contact with peoples of Southern Asia, if not also with the ancient Egyptians or Phoenicians. The barbaric splendor seen in the religious and higher social life of Mexico and Peru, as well as of Central America, resembled in many respects that of Southern Asia, which is thought by some writers to have been the original home of much of the culture found by the Spanish conquerors on the American Continent. On the other hand, Central America has been credited with being the source from which the ancient Chaldeans and Egyptians derived most of their civilization. We have here a very interesting problem which may never be completely solved, and which, nevertheless, may have light thrown on it by reference to data we already possess. It is advisable to distinguish clearly between origin of race and origin of culture. For, a people may have lived for hundreds or thousands of years completely isolated from the inhabitants of any other area, and then through conquest or some other agency, may be brought into close association with another people from a considerable distance, resulting in a complete change of social life. The conquest of the Britons by the Romans furnishes a case in point. The description given of the Britons by Latin writers when the Romans first came in

contact with them, shows that they may with propriety be described as being then in a low stage of barbarism. And yet they took so kindly to Roman culture, that by the time the Roman occupation came to an end they had adopted the habits of their conquerors, and had lost the capacity to defend themselves successfully against the northern barbarians whom the Romans had not cared to subdue. A similar change took place in the social and religious life of the native inhabitants of the American Continent, consequent on the Spanish conquest, where this became actually effective. The civilization found by the Spaniards to exist in Mexico and Peru and in Central America was highly developed along certain lines and had much in common with the culture of certain Asiatic peoples, and the question arises how this similarity is to be explained.

The actual place of origin of civilization or of a particular series of ideas is in itself a matter of indifference, although its identification, if possible, is desirable in the interests of science. In many cases the relative influence of peoples must remain a question of probabilities; and a probability in favor of a particular conclusion as to the relations between peoples of the American and the Asiatic Continents may be inferred from a series of facts which have not yet received due consideration. The age of a continent is judged of by reference to geological data, and although such data may not be sufficient to enable the exact age of the area to be calculated, yet by comparison with other data of the same kind the relative ages of two such areas may be established. Similarly, by reference to geographical data calculations may be made as to the time during which a region has been inhabited by man, or at least as to which of two regions has been thus populated for the longer period. This is an important consideration, as it may be found that ideas which were supposed to have been derived by one people from another, were probably in the possession of the former at a time when they could hardly have been known to the latter. For that purpose it is important first to ascertain what was the geographical condition of the American Continent at the time of the discovery by Columbus, and then form an estimate of the volume of its human population. As to the first point, it may be said with confidence that four hundred years ago a very large proportion of the North American Continent east of the Rocky Mountains was covered with dense forests, which had been cleared away in places for town or village sites, with patches for cultivation, particularly by river-courses; and that the remaining portion of its surface consisted of comparatively open prairie, over which the wild buffalo and the wild Indian roamed together, or of arid regions the inhabitants of which must always have been few in number. West of the Rocky Mountains, far down into Mexico, much the same state of things prevailed, but further south a large portion of the country was cultivated, and this statement applies also to

much of the territory along the Pacific coast of South Ameria, west of the Andes. The lowlands east of the Andes were then covered, as in great part they are now, with almost impassable forests, penetrated, however, by numerous rivers, large and small; while further south the country was composed of vast prairie-like plains.

From the geographical conditions of the country, as above described, it is quite certain that neither North America nor South America was densely populated when first discovered by Europeans. There were many tribes in the Northern continent scattered along the borders of the Great Lakes and the banks of the rivers and rivulets, especially in the valleys of the Mississippi, Ohio and Missouri Rivers, or wandering over the great plains of the West; but this would give a very sparse population for the whole continental area, even if the more numerous inhabitants of Mexico and the adjoining territory of Central America be added. The same must be said in relation to South America. West of the Andes was a more or less sedentary population, comparable in numbers to that of Mexico and Central America. East of the great mountain range, however, the human inhabitants were probably not nearly so numerous as were the dwellers on the Northern continent east of the Rocky Mountains. It is not necessary for the present purpose to go into calculations, which must be necessarily more or less uncertain, but it may be regarded as positive that the population of the American Continent was never greater than it is at present, excluding even the inhabitants of the United States. Thus we may assume that four hundred years ago this continent had about forty millions of human inhabitants, the great majority of whom were located between the great mountain range and the Pacific from Mexico to Chili. It may be thought that at a much earlier period the continent was more densely populated, and the existence of numerous ruined cities and habitations may be referred to in support of the idea. But such a contention has little weight. Because a city is in ruins we cannot infer that it was destroyed by enemies and its inhabitants massacred. It is true that during a certain period the sanguinary rites of the Mexican religion required the yearly slaughter of thousands of human victims, but other causes must be sought for the general depopulation of cities and districts. Mr. A. F. Bandelier in "Papers of the Archæological Institute of America," American Series (page 155), expressly asserts that the existence of numerous ruins in Arizona and the Southwest indicates numerous shiftings, and not a large simultaneous population. Many settlements are known to have been voluntarily deserted, and the traditions of nearly all the Indian tribes refer to migrations from one place to another. Voluntary removal may take place even from cities with many inhabitants, and hence the existence of large ruined cities in Central America furnish no evidence of destroyed populations.

In India and Central Asia ruined cities are not uncommon, and it is known that in some cases at least they have been abandoned owing to natural causes, and even at the mere behest of a king, who wished to erect not only his own palace but his own city, to which the inhabitants of an older adjacent city were compelled to remove. In Central Asia extensive districts, with the cities within them, have been rendered uninhabitable by the encroachment of desert sand, by which the buildings are now completely entombed.

Let us now see what is the geographical condition of the great Asiatic Continent or, say, of the southern half of it, giving an area comparable with that of the American Continent. Southern Asia is bounded on one side chiefly by the waters of the Indian Ocean and of the Pacific Ocean, and along the margin of these great water basins are to be found its most thickly populated areas, portions of which are covered with forest, but exhibiting nothing in this respect comparable to the vast forests with which so large a part of the American continental area was at one time, and in some parts still is, covered. The slopes of the Himalayas and the high plateaus north of this great mountain range may be compared to the rising grounds and the highlands of the Rocky Mountains and the Andes, neither of which, however, present any analogy to the great sand deserts of Central Asia, unless it be the waterless regions of the Southwest of the United States. It is probable that the deserts of Central Asia at one time teemed with human life, as in many parts exist mounds that mark the sites of former cities; some of which have been disentombed and were found to have been overwhelmed by waves of sand sometime after the introduction there of the Buddhistic faith. We may, therefore, exclude from consideration the former populations of the submerged cities, and notice, only the peoples of the more southerly portion of the Asiatic Continent, many of whom have traditions of migrations from Central Asia. What was actually the population of India and China four hundred years ago, we cannot say with certainty. Wars, pestilence and famine have in past ages often prevented any increase of population over long periods, and such agencies operate still to offset the effect of the activity of the generative process, no less in the human world than in the animal world. It is very improbable, however, that at any time, under the most favorable circumstances, were the inhabitants of those two countries nearly so great in number as at present. As a rough estimate, we may say that the population is now double what it was four hundred years ago, notwithstanding the destructive agencies which have been at work throughout a large portion of the period. Accepting this view, we may say that about the time of the discovery of the American Continent by Columbus, who was in search of "Cathay," China had a population of about 200,000,000, and India a population of

about 150,000,000. If we add 50,000,000 as the number of inhabitants of the other countries of Southern Asia, including Asia Minor, Arabia, Persia, Thibet, and Malaysia, we have 400,000,000 of people, against the 40,000,000 of the American Continent. The latter is a very liberal estimate, as the western half of this continent, outside of the United States, has now only about this number of inhabitants, and it would be reduced to 20,000,000 if the rule as to doubling in four hundred years were applied to it during the most recent period of that length, as in the case of Southern Asia.*

There is just as much reason for applying the term "aboriginal" to the peoples of Southern Asia, as there is for ascribing this character to the pre-European population of the American continental areas, and as there are no grounds for supposing that under ordinary conditions the increase of mankind takes place more rapidly in Asia than it does in America, we may safely assume that a much longer period was required for the production of 400,000,000 inhabitants of Southern Asia, than for that of the so much less numerous population of pre-Columbian America. It is, of course, impossible to make any reliable estimate of the length of time either of those areas has been inhabited, but we may apply an arbitrary rule to both areas alike, and thus make a comparative calculation of the number of the inhabitants at a particular past epoch. Let us suppose that under former prevalent conditions populations doubled in the course of each period of four hundred years, as above suggested, then eight hundred years ago the inhabitants of Southern Asia numbered 200,000,000, and four thousand years ago they would be less than 1,000,000. This number does not, of course, give the actual sum of the population of those two countries at that time, which was undoubtedly much greater, showing that the doubling of population must have required on an average much longer than four hundred years, but it may be used for comparative purposes. If we apply the same rule to the American Continent we shall see that four thousand years ago its inhabitants would be less than one hundred thousand in number, nearly all of whom would reside along the Pacific coast area from Mexico to Chili, as the population of Southern Asia would be congregated chiefly in China and India, the adjoining regions. Supposing that number to be much too small, Southern Asia would still have a relative preponderance.

We come now to the question whether it is more probable that a small population of some part of the Amerian area should have originated a civilization and transported important features of it to the Asiatic area, with its much larger population and supposedly of at least equal civilization, or that the

* As to the period of four hundred years taken for doubling, reference may be made to a recent writer on population, who says: "Within one century the population of various countries of Europe has increased more than it had increased for several centuries before," and that the same tendency is observable in the New World

reverse process, occurred. How far the ruined structures of Central America and Mexico will compare with those of greater India, or the Peruvian mines with those of Western Asia, is a question. But the very number and magnitude of those structures on the American Continent is evidence that they must be referred to a more recent period than that of 2100 B. C., or four thousand years ago. At the date of the commencement of the Christian era America, according to the rule laid down, would have a population of about 3,000,000 only, and it is questionable whether their civilization, if purely native, would then have been sufficiently developed to enable them to design and carry out the great works which covered various districts from Mexico to Peru. Nor would such have been the case with double that population located at separate centers. Notwithstanding its much greater population, the ruins met with within the Indian area appear not to be of any great age. In India the oldest structures, such as the rock cut temples, do not antedate the introduction of Buddhism, and, indeed, date only two or three centuries before Christ. The ruined cities and temples of Cambodia are not only superior to any architectural remains in India proper, but they are more ancient, and yet they were not erected before 443 B. C. Local traditions and the Cambodian annals give this as the date of the arrival in that country of an Indian prince, whose marriage to the daughter of the king was celebrated by the erection of the capital Angkor-Thom. The Cambodian architecture is Indian in general character, but it is said by Fergusson to show traces of Roman Doric, just as the Hindu-Naga temples of Cashmere show the influence of the earlier Grecian Doric. Hindu mythology furnishes many of the subjects represented in the carving with which the Cambodian buildings are decorated, but Buddhist subjects are introduced, confirming the native accounts of the encroachment of the Buddhist element on the Brahmanic, and thus helping to establish the date of the buildings themselves. One feature of Cambodian architecture is the use of a great serpent, carved in stone, to form a balustrade, the serpent being supported sometimes by human giants, and at other times by pigmies, as depicted in Delaporte's work on Cambodian architecture. A similar feature is met with in the ruins of Central America, where a great serpent,—the rattlesnake, however, instead of the cobra of India,—is employed for a similar purpose, and is supported by dwarf human figures as in Cambodia, although the treatment is different.

There are other features which the ruined structures of Central America possess in common with those of Cambodia (apart from the similar erection of buildings on terraced mounds) such as the carving of gigantic human heads or faces, and of heads with a long proboscis, which in Cambodia are elephants' heads, on the face or at the angles of buildings. If these facts can be taken to show an actual connection between the builders of

the two series of structures, then we are able to give an approximate date for the erection of some, at least, of the ruined buildings of Central America. For, from the general considerations above adduced, and owing to the fact that the ideas embodied in Cambodian architecture have had for the most part an Indian origin, modified somewhat by western influence, we must suppose that America has been indebted to Asia for ideas, rather than the reverse, and that the buildings of Central America were erected later than those of Cambodia. Hence, we shall probably be not far wrong in assigning a period from between the beginning of the second century before and the end of the second century after the commencement of the Christian era, for the erection of the most ancient of the ruined cities of Central America; some of which would seem to have been occupied at the time of the Spanish conquest by the peoples who built them.

It is known that extensive migrations from India and Indo-China to the islands of the Indian Archipelago and the Pacific took place, probably as the result of the conflicts between Brahmans and Buddhists, during that period and still later, and as wave followed wave of migration, it would not be surprising if peoples from that Asiatic region reached Central America. The ruined temples of Java are said to have features in common with those of both Cambodia and Central America, and Java, may possibly have been the actual starting point for a migration which reached this continent. Another place of origin might be assigned, however, for such a movement. The temples of Cambodia are closely connected with the Naga or serpent cult, the Indian headquarters of which have been with good show of reason assigned to Cashmere, and as there are evidences of extensive migrations from the region of the Indus, it is not impossible that persons sailing from the Arabian Sea carried to Central America the Naga architecture, and with it a religious cult. The Arabs and neighboring peoples were the most adventurous sailors of the Old World two thousand years ago. It may be, indeed, that Asiatic ideas have been carried to America at different epochs, as there are points in which the architectural relics of Yucatan may be thought to show contact with Babylonian thought, and, even, with that of Greece.

PHILIPPINE STUDIES.—VII.

PLACE-NAMES DERIVED FROM PLANT-NAMES.

BY ALEXANDER F. CHAMBERLAIN.

Very common, as was stated in the discussion of the derivation of Manila (Vol. XXIII., p. 333), in the East Indies is the custom of naming places after some flower, plant, tree, etc., found in the neighborhood. The present paper deals with some other place-names originating from the consideration of their vegetal environment.

1. AGOHO. Town in S. Union, Luzón; point in S. E. Sámar. In Tagal the "cypress vine" (*Quamochlit pennata*), introduced from Mexico, is called *agoho*. In several Philippine dialects (Tagal, Visayan, Pampangan, Ilocan) the *Casuarina equisetifolia* is also termed *agoho*, or *agoo*. The place-names *Agojo*,—town in the island of Camiguín, north of Mindanao; point in Catanduanes,—probably belong here also.

2. BALAOANG. Town in Union, Luzón. In Tagal the tree *Mocenera thurifera* and its resin are called *balao*. The name *Balaoang* would signify "place of *balao*." Mt. *Balao* in Batangas, Luzón, may have its name from the same source. The Tagal word *baláo* means "red."

3. BALTONG. Point in Negros. In Tagal the *Phaseolus max*, or "black gram" bean, is called *balatong*. The *Cassia occidentalis*, introduced from America, is known as *balatong aso*, "dog *balatong*."

4. BALETE. Town in S. Mindanao and N. Panay. In several Philippine dialects (Tagal, Pampangan, etc.) the *Ficus* Indica, or banyan-tree, is called *balete*, or *balite*.

5. BANOD. Town in island of Marinduque. A Tagal name of the *Bauhenia scandens* is *banot*.

6. BATANGAN. Mountain in E. Mindoro. In Cebuan the so-called "velvet-leaf" (*Cissampelos pareira*) is named *batang-batang*. The name *Batangan* would mean "place of *batang*." The town-name *Batangen*, in S. W. Luzón, is the same word.

7. BAYABAS. Mountain in S. Luzón, mountains N. W. Luzón. A Tagal name of the guava (*Psidium guayava*) is *bayábas*.

8. BITOON. Town in Cebú. One of the Visayan names of the *Barringtonia speciosa* is *bitoon*, or *bitung* (*bitong*).

9. BOCABOC. Island and strait northeast of Negros. A Tagal name of the *Scævola lobelia*, a shrub used in paper-making, is *bocáboc*.

10. BOTONG. Town in North Mindanao. In several Philippine dialects (Tagal, Visayan, etc.), one of the names of the *Barringtonia speciosa* is *botong*.

11. BULAC. River in South Leyte. Also *Bulac-búlac*, point in the island of Burías, and *Búlacan*, province and town in central Luzón. The name in Tagal and several other dialects of the cotton-plant (*Gossypium Indicum*) is *búlac*, which word means also "raw cotton," etc.

12. BURI. Island west of Sámar. Points in South Batangas, South Camarines, Corregidor Island (Luzón). In several Philippine dialects (Tagal, Visayan, etc.) the talipot-palm (*Corypha umbraculifera*) is called *buri* or *buli*.

13. CALUMPAN. Point in South Masbate. A Tagal name of the *Sterculia fœtida*, a nut-tree, is *calumpang*.

14. CAMOTES. Islands west of Leyte. The sweet potato (*Batatas edulis*), introduced from America, is known in Spanish, Tagal, and several other Philippine dialects, as *camóte*, or *camóti*, names derived from the ancient Mexican (Nahuatl) term *camotl*. The word *Camótes* is the Spanish plural.

15. CANAMAI. Point in Negros. A Tagal name of the *Diospyrus multiflora*, whose poisonous fruit is used to kill fish, is *canomai*.

16. CATMON. River and point in Cebú. Point and inlet in Negros. Mountain in Leyte. The Tagal name of the *Dillenia speciosa*, the acid juice of which is used for vinegar, is *catmón*.

17. COGON. Point in the island of Panaón, southeast of Leyte. The *Imperata cylindrica*, a reed-like grass, used for thatch, is called in several Philippine dialects (Tagal, Visayan, etc.) *cogon*, or *cogon-cogon*.

18. DALUGDUG. Point in Leyte. In Visayan the *Guilandia bonduc*, whose seeds are used medicinally, is called *dalugdug*.

19. GAPAS. Mineral spring in province of Batangas (Luzón). In Visayan the *Vitex trifolia* is called *gapas-gapas*.

20. HAGONOY. Town in province of Bulacán (Luzón), lake in Luzón. In several Philippine dialects (Tagal, Visayan, etc.) the *Spilanthus acmella*, introduced from Mauritius, is called *hagonoi*, or *agonoi*.

21. ISIO. Town in Negros. A Tagal name of the *Ficus oppositifolia*, a small fruit-tree, is *isio-isio*, or *isio*.

22. LAMBAJON. Point in East Mindanao. In several Philippine dialects (Tagal, Visayan, Ilocan, etc.) the *Ipomæa pescapræ* is called *lambayóng*, or *lampayóng*.

23. LAUAAN. Mountain in Northeast Leyte, and on the island of Biliran. The *Mocanera verniciflua*, a large timber-tree, is called in several Philippine dialects (Tagal, Visayan, etc.) *lavaan*.

24. LAYA-LAYA. Island west of Sámar. In several Philippine dialects the common ginger-plant (*Zingiber officinale*) is called (as in Tagal) *laya.*

25. LIBAY. Town in Dapitan, Northwest Mindanao. A Tagal name of the *Achyranthes aspera*, a weed, is *libai.*

26. LUCBAN. Town in Tayabas (Luzón). In Tagal *lucban.* is the name given to the shaddock (*Citrus decumana*). *Lucbán* is also the name of a distinguished family of Filipinos opposed to the Americans in the Philippine war. In modern Tagal *lucbán* also means "orange-tree."

27. LUMBANG. Town in province of Laguna (Luzón). In Tagal the *Aleurites triloba*, or "candle-nut," is called *lumban.*

28. MALABUYOC. Town in Cebú. A Tagal name of the *Cassyta filiformis* is *malabóhoc.*

29. MONGOS-MONGOS. Island west of Luzón. A Tagal name of the *Phaseolus max* is *mongos.*

30. NAGA. Towns in provinces of Albay and Camarines (Luzón). Town in Cebú. In Visayan and some other (Camarines, etc.) Philippine dialects the timber-tree *Pterocarpus pallidus* is called *naga.*

31 NIPA. Port in Panay. Also *Nipa-nipa*, inlet in Sámar. One of the Tagal names of the *Nipa fruticans*, a palm whose leaves are used for thatch, and whose sap is used to produce an intoxicating liquor, is *nipa.*

32. NONOC. Town in Surigao, Northwest Mindanao. One of the Visayan names of the *Ficus Indica*, or banyan-tree, is *nonoc.*

33. PANABULON. Island, southeast of Panay. One of the Tagal names of the *Scævola lobelia*, used in paper-making, is *panabolong.*

34. PANAON. Island and strait southeast of Leyte. Point in North Mindanao. One of the Tagal names of the *Mocanera verniciflua* is *panao.* The word *Panaón* would mean "place of *panao.*"

35. PANDAN. Towns in Catanduanes and Panay. Island west of Mindoro; island group near Bohol. Inlets in North Mindoro and West Panay. Points in Negros, Southeast Mindoro, East Leyte, East Batangas (Luzón). Mountains in Guimarás and Southwest Leyte. In several Philippine dialects (as in Ilocan) the *Terminalia catappa*, or "Indian almond," is called *pandan.*

36. PINA. Island south of Masbate. The usual Philippine name for the pine-apple, introduced from America, is *pina*, a Spanish word.

37. PITOGO. Town and harbor in Tayabas (Luzón). Island and strait east of Carmarines (Luzón). One of the Tagal names of the *Cycas circinalis*, or sago-plant, is *bitogo*, or *pitogo*

38. SANTOLAN. Mineral spring in Pasig (Luzón). A Tagal name of the *Sandoricum Indicum*, or sandal-wood is *santol*. The word *Santolan* would mean "place of *santol*."

39. SUA. Town in Zambales (Luzón). Points in Southeast Leyte and East Luzón. Mountain in the island of Biliran. In Tagal the *Citrus torosa*, or double-leaved citron, is called *suha*. The word also means "orange-tree."

40. TABIGUI. Point in North Bohol. One of the Tagal names of the *Xyloçarpus granatum* is *tabiqui* The word *Tabiqui*, name of a point in Batangas (Luzón) belong here also.

41. TABOGON. Town in Cebú. A Tagal name of the melon (*Cucumis melo*), introduced from continental Asia, is *tabogo*. The word *Tabogón* would mean "place of *tabogo*."

42. TALISAY. Towns in provinces of Albay, Batangas and Camarines (Luzón). Town in Cebú. Points in Northwest Negros, Rapu-rapu (southeast of Luzón), and in islands of Semerara and Ticao. Mountain in Misamis (Mindanao) and in Leyte. In several Philippine dialects (Tagal, Visayan, etc.) the *Terminalia catappa*, or "Indian almond," is called *talisai*. The word *Talisayan*, name of a town in Mindanao and a mountain in Leyte, means "place of *talisai*."

43. TANAGON. Point in island of Daram, west of Sámar. In several Philippine dialects (Tagal, Visayan, etc.) the *Kleinhovia hospita* is called *tanag*. The word *Tanagon* would mean "place of *tanag*."

44. TAYUN. Town in Abra (Luzón). In several Philippine dialects (Tagal, Pampangan, Visayan, etc.) the indigo plant *Indigofera tinctoria*) is called *tayon* (*tayung*).

45. UBIAN. Groups of islands in Tawi-Tawi and Pangutaran Archipelagos. Harbor in Tawi-Tawi. A Tagal name of the *Dioscorea alata*, a species of yam, is *ubi*. The word *Ubian* would signify "place of *ubi*."

These examples will serve to indicate the extent to which plant-names enter into the geographical nomenclature of the Philippines. For the purposes of such investigations the following works will be found of value: Pickering, C., "Chronological History of Plants" (Boston, 1879), Blanco, Fr. M., "Flora de Filipinas" (Manila, 1837,—also new and enlarged edition, Manila, 1877-1880); De Candolle, A., "History of Cultivated Plants" (New York, 1883); Algue, José, "Atlas de Filipinas," "Atlas of the Philippine Islands" (Washington, 1900).

THE MIGDOL TOWERS OF EGYPT AND PALESTINE.

BY JOSEPH OFFORD.

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The magnificent volume of "Tebtunis Papyri" published under the auspices of the University of California and the Egypt Exploration Fund, among other instances contains, in three of its papyri, what may be utilized as an object lesson to indicate how these apparently valueless documents in reality are pregnant with information which may be used to link up a number of previously isolated archæological and philogical matters, and to throw light upon many an obscure but interesting historical connection.

Paypri numbers 80, 81 and 82 all concern a village named Magdola,* situated on the site of the present Medinet-Nehas, in the Fayoum. This, however, is not the only Magdola of the papyri, for in Grenfell & Hunt's "Fayoum Towers," it speaks of a Fayoum tower named Magdola, or Magdolos.

Moreover, the name is found as the title of a village in a Demotic papyrus of the time of Ptolemy Philopater given by Mr. Griffith in a monograph upon the manuscript printed in the "Proceedings of the Society of Biblical Archæology" in 1901.

The second Magdola was in upper Egypt, to the west of Thebes. Magdola is derived from the Semitic word "Migdol," "a tower," of which more will be said presently. Upon this subject the papyri afford interesting details, for we have in several of them receipts for tax payments for the upkeep or guarding of Magdola. Reference may be made to papyri numbers 54, 106, 239, 316, &c., in "Fayoum Towers." In some of these a μαγδωλοφύλαξ occurs, and in the Berlin Greek Papyri, published in "Griechische Urkunden," 282-13, πυργομαγδωλ occurs.

We therefore see the Hebrew Semitic word was quite common in the Greco-Egyptian period of the Ptolemies. But, the word was Egyptianized far earlier than this, for at the time of the Israelite Exodus there was a Magdol, or Maktal, in the Sethroite Nome. Fxodus xiv., 2, speaks of the fugitives "encamping between Migdol and the sea."

We are not, however, restricted to Old Testament proof of the antiquity of this name for sites in Egypt and Syria, because Brugsch in his "History of Egypt from the Monuments" quotes an inscription of Rameses III. celebrating a victory at Migdol.† Another was near Pelusium in the Sethroite Nome,

*Deissmann in his "Bible Studies" has some remarks upon Migdol-Magdlo in Egypt, but at the date of his writing the Fayoum Towers and Tebtunis papyri were unpublished.

†This was in Phoenicia or Syria.

and had the duplicate of Samut. He also gives a most interesting text of Amenophis, which he says reads: "From Migdol (? Samut) as far as Sene on the frontier of the land of Kush."

This is the Egyptian stereotype annalistic phrase for describing their Nile Valley Kingdom, like the English speak of "From Land's-End to John of Groats," which Ezekiel uses almost word for word in prophesying the desolation of Egypt in his 29th chapter, where he speaks of "from Migdol to Seveneh, even unto the border of Kush."

The date of the adoption of the word by the Egyptians probably preceded that of the well-known papyrus in which a scribe of conservative views bitterly laments that young fashionable Egyptians used a number of Semitic words alien to their true and better mother tongue. It apparently became changed from its true pronunciation after its importation into the Egyptian vocabulary, because there is every reason to believe that the ancient Egyptian town names Ma-k-to-ra or Ma-k-ti-ra are this word.

In one of the Anastasi papyri two runaway slaves are reported to have escaped into Syria by passing the north-eastern frontier wall of (or at) the Watch-tower ma-k-ti-ra, of the Pharaoh Seti I.

In Jeremiah a Migdol associated with Tahpanhes, and Noph is spoken of as a residence of the Jews in Egypt.

This was, however, probably in the Delta, as, of course, was the Magdolos, near Pelusium, spoken of by Hecateus of Miletus, as quoted by Stephen of Byzantium.

Μαγδωλός πολις Αἰγύπτου Ἑκαταῖος περιηγησει τὸ ἐθνικὸν Μαγδωλιτης.

This Magdola is mentioned by other classical authors, probably the last being in the "Itinerary of Antonienus," as given in Parthey's edition "A Serapiu Pelusio mpm. LX., Thaubasis VIII., Sile XXVIII., Magdolo XII., Pelusio XII."

Being a common word in Greco-Roman Egypt, it also descended to the Coptic and we have the names in the Sahidic texts ⲙⲉⲓⲅⲧⲱⲗ and ⲙⲉⲭⲧⲱⲗ, from which, doubtless, came many Mashtools of Arabic Egypt; sites of the watch-towers or forts which defended the village and gave it its name in Pharaoic times, though it may be the Arabic word for a plantation.

Returning for a moment to the pre-Mosaic Migdols of Egypt: they were well known, because No. 597 of the "Tel el Amarna Tablets" says, "Behold, Acco is like Migdol in Egypt, and let not the king permit these men (the enemy) to occupy the city." Meaning it was a frontier fortress of value, like the Migdol of the Delta. Two Syrian cities named Migdol also occur in the Tablets numbers 237 and 281.

Before leaving the Migdols of Egypt, it should be noted that the new Greek papyri prove the word was not confined in its usage to sites in the Delta, that is near to Syria, and thus might be ascribed the appellation having been assigned to the place during the Hyksos, or some Syrian, occupation of that

part of the country, for the Magdola of the papyri, both Greek and Demotic, are in Middle Egypt.

A word in conclusion about the Migdols of Palestine; like the watch-towers of the warlike time after the invasion of the Promised Land, they were many, as any Bible Dictionary tells. One is later famous because "Mary Magdalene" dwelt there. This distinctive appellative of hers, derived from the root-word for a tower, an eminence, from which watch and ward for a foe could be kept, its original meaning and derivation obliterated by time; has in the New World, out of honor to the name of this Mary of the New Testament, been bestowed as title for one of the mighty rivers of South America.*

DISCOVERY OF PLATINUM AMONG THE ANCIENT EGYPTIAN METALS.

FROM THE FRENCH OF M. BERTHELT.

[Communication to the Academie des Sciences.

I had occasion to study lately a metallic box, covered with hieroglyphic inscriptions, presented for my examination by M. Benedit, associate custodian of Egyptian Antiquities of the Louvre Museum. It was found at Thebes. It was dedicated by Queen Shopentpit, daughter of King Psammetik I. (Seventh Century before our era). It is covered with designs and inscriptions in gold on one of the faces; in silver on the other.

The study of this object raises numberless questions with regard to chemical analysis applied to archæology and the changes occasioned by time to the ancient technique of its constructors, especially as it relates to the processes employed for the preparation of the coatings and incrustations of the designs and characters. I shall consider them in detail in a paper which will shortly appear in the *Annales de Chimie et de Physique;* but it may be of interest to present now some facts relative to the discovery of platinum, a constituent of one of the hieroglyphic characters.

This metal was of the color of silver, part of a linear character, detached from the table of hieroglyphic inscriptions. At first, I took it for silver on account of its color; but its chemical properties are quite different.

It is beaten metal of dimensions comparable to other characters, dimensions determined by means of the palmer,† which are almost uniform for each class of characters. For this one, they are 5 millimeters in length, 0.55 in width,

* Many ruined Migdols or watch-towers are still to be seen in the Hauran east of the Jordan. Herodotus calls Megiddo where Necho defeated Josiah, Magdolos; it may be because near the battle field there was a watch-tower, Migdol, or arose from a scribal error.

† Divided measure of a hand's breadth.

0.23 (after a preliminary treatment with nitro-chlorhydric acid) in thickness.

The following is the process to which it was submitted: The scale was treated first with boiling nitric acid, without being in any manner attacked, as silver would have been. Surprised, I added to the acid twice its volume of concentrated chlorohydric acid, so as to obtain *aqua regia*, and I brought the whole to the boiling point. In these conditions pure gold and alloys of gold and silver are rapidly destroyed. A slight attack, indeed, occurred, but the thickness was not in the least diminished, even by keeping the tube in a water bath at 100° for almost an hour, conditions under which objects of pure platinum of the same thickness would be dissolved; a fact easy tp verify. The aqua regia did indeed dissolve a small quantity of yellow platinum chloride, whose mixture with a solution of potassium chloride furnishes under the microscope some red crystalline grains. But the resistence wae similar to that of certain platinum minerals, rich in iridium and other related elements.

After the repetition of similar treatment, the scale of metal was heated to a bright red for ten minutes, over an enameling lamp, in a small porcelain crucible, with the addition of potassium nitrate, which was quickly decomposed. The scale was noticeably attacked. Still a great part resisted without manifesting any fusion, while retaking a bright silvery luster, which it had partly lost. The mixture of alkali and of nitrates, remaining in the crucible, took on a greenish hue.

The attack was remarkable, because the thickness of the layer in consequence of this treatment was reduced to 0.06 millimeters. The edges had become irregular and jagged. After washing with water, a new boiling with aqua regia was made. The new attack was still incomplete. The metal lost its polish and was covered with a wrinkled and yellowish gray coating. The aqua regia solution contained some platinum and a little gold, as was proved by the formation of the purple of Cassius. That portion of the metal not attacked resumed its luster under the pestle in an agate mortar; but there remained too little of it to proceed further.

I have given these somewhat detailed observations to show precisely the singular resistance to reagents of a metallic fiake, whose initial weight did not exceed five or six miiligrammes. This resistance not only surpasses that of gold, but that of pure platinum. It implies the existence of a compiex alloy, containing several metals of the character of platinum and also a little gold. This was prepared without doubt from a rare native alluvium mineral, likely to be met with at the same time as native gold, as

part of the country, for the Magdola of the papyri, both Greek and Demotic, are in Middle Egypt.

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0.28 (after a preliminary treatment with nitro-chlorhydric acid) in thickness.

The following is the process to which it was submitted: The scale was treated first with boiling nitric acid, without being in any manner attacked, as silver would have been. Surprised, I added to the acid twice its volume of concentrated chlorohydric acid, so as to obtain *aqua regia*, and I brought the whole to the boiling point. In these conditions pure gold and alloys of gold and silver are rapidly destroyed. A slight attack, indeed, occurred, but the thickness was not in the least diminished, even by keeping the tube in a water bath at 100° for almost an hour, conditions under which objects of pure platinum of the same thickness would be dissolved; a fact easy tp verify. The aqua regia did indeed dissolve a small quantity of yellow platinum chloride, whose mixture with a solution of potassium chloride furnishes under the microscope some red crystalline grains. But the resistence wae similar to that of certain platinum minerals, rich in iridium and other related elements.

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mineralogists know. It was perhaps confounded with silver by the ancient Egyptians, because it had been reduced to regular leaves with the hammer, as they were accustomed to do with the nuggets of gold which accompany it.

It is questionable whether the operators submitted to special treatment a mineral whose exceptional character they had not remarked. If they had frequently met with specimens of it, they would have distinguished them by the infusibility and permanency of the metal, as compared with silver. Here is an enigma, which will only be explained when samples of this kind with special hieratic or artistic application shall have been met with among the Egyptian metals.

To ascertain whether these designs and inscriptions of the box enclosed several specimens, it would have been necessary to treat and to dissolve a great portion of it; a necessity which would have required the sacrifice of a precious archæological object. I detached one of the metallic stars at the top of the object, representing the heavens, but I found it consisted simply of silver.

I do not think that platinum has been previously observed among the metals coming from Egypt, even of ancient times. Nor has it appeared, either in Africa or Arabia. Its rarely occurring ores belong to entirely different regions, especially to the Ural and Siberia. But they have been found in the auriferous and staniferous alluvium in Ireland and Brittany, in the Rhine, in Lapland, in Transylvania, etc. There are probably specimens in the alluvium of Nubia and the upper regions of the valleys of the Nile and its affluents.

EDITORIALS.

THE RELICS OF THE MISSISSIPPI VALLEY.

The study of the relics of the Mississippi Valley has been followed by various archæologists for fifty years or more, with such diligence that we have now, a fairly reliable source of evidence as to the actual condition of the people who occupied that valley during prehistoric times. The work of gathering the relics has been followed from different motives and with varied success. But, notwithstanding the desultory method, the result has been productive of good, and all that the student has to do now, is to go to the various museums, where private collections are sure to be gathered in course of time, and there study the relics at his leisure. Of course the absence of the people who used the relics will be felt, and the want of familiarity with the life which once existed, but which has so greatly changed, will be realized; still, to the one who has read history and is familiar with archæology, there is no great difficulty in rehabilitating the scene and repeopling the land with a population which shall correspond to that which has long since passed away. It is, however, not merely by taking one locality or one tribe, or even one period of occupation, that the complete lesson is to be learned, but rather by taking the whole great valley through which the Mississippi River and its branches have flowed for ages, as the field for study; then familiarizing oneself with its physical features, its varied scenery, its diverse natural products, its separate divisions, and its former inhabitants, with the various wild animals and creatures which formerly prevailed, and imagine the whole scene to be filled with a diverse population, each engaged in its own activities.

There may, indeed, come before the mind various visions which are unreal, and one may imagine a succession of population which never existed. He may picture out scenes and events which never occurred, and yet when one considers the isolation of the continent in prehistoric times and especially the isolation of this particular region from all other regions in the continent, there is not so much danger of going astray as some have imagined. One good result has followed from the discussion which has gone on during the last half century concerning the difference between the Mound-Builders and the Indians, viz., by this means all the vague and visionary views of the visits and sojourns of foreign people who occupied the region and mysteriously disappeared, have been dispelled, and we are now reduced to the necessity of taking the Indians, even in their degenerate condition, as the sole survivors and

only representatives of the people who formerly dwelt upon this continent, only taking the liberty to designate their former condition by using the term "Mound-Builders," and their present condition by using the term "Indian."

We have already made a map of this valley showing the character of the mounds, and another map which shows the location of the various tribes, and the reader has undoubtedly noticed the correlation between the two maps. But the filling in of the outlines and the peopling of the scene has been left altogether to the imagination.

The work now is to study the relics which have been gathered from these different districts, and draw the comparison between them, so that the two maps may be equally instructive, one map serving as a back-ground, the other map serving as a composition or outline. But the relics themselves serve as the different parts of a mosaic which may help to bring out the figures and make them even more life-like.

In fact this work has been accomplished by some of the State Museums, and whole volumes have been written upon the relics and published at the expense of the State, so that it is an easy task now to identify the relics which belong to a limited district, and understand the peculiar style of art which prevailed in that locality, and even apprehend the mode of life which was led by the prehistoric people who lived there. This is the work which the archæologist has before him. It is not merely the collecting of relics, either as curiosities or as works of art, but the recognition of the life which was led by those who wrought out and used the relics that he has set before him.

It will be the object of this chapter to so describe the relics which have been discovered in the various portions of the Mississippi Valley, that the reader may discover the unity and diversity which prevailed among the prehistoric populations, and gain a picture of the condition of each particular district in prehistoric times.

It is to be noticed that there is a correlation between the artifacts of each particular locality and the physical surroundings, so close that one may read the various collections as he would read a book, and learn through them the employments and modes of life of the people who dwelt in the locality.

There were in this Valley several distinct stocks, each of which was divided up into two or three distinct tribes; each tribe was divided into clans, and each clan having its own villages and clan habitat, so that the collecting of relics from each locality into some large museum is equal to furnishing the local documents by which the history of a people may be learned. There is often an advantage in taking the descriptions which have been written by some intelligent collector, then placing them together with others, and from the whole series learn the style which prevailed with the particular tribes, and

at the same time recognize the difference between the tribes. There is, however, a work for the student which is broader than this. It is to take the literature which has been written about the different tribes, and from this learn the life which was formerly led, and by this means apprehend the significance of each article which may have been preserved, and by readjusting the fragments really get a new mosaic of the same scene.

Some may say that the history of the Indian tribes is not important enough to give so much attention to it; they are a doomed race and are likely to disappear. But this is not becoming to any man who is engaged in the study of ethnology, and is not worthy of notice. It is, however, not merely a question about the Indians, for there is hidden behind the record contained in the relics another question in reference to the origin of the Mound-Builders and the Indians and their

Effigy Pipe.

Bear Pipe.

relation to the tribes and races of the Old World, and the larger question of the peopling of the continent is brought before us by the solution of this problem. The similarity of the customs of all people who have reached certain stages is also made apparent, and the whole subject of the origin of art, the origin of religion, the growth of civilization, are all concerned in the answer which we shall receive, from the study of the rude and primitive objects which lie buried in the mounds. There are, to be sure, many theories which are liable to mislead us; one of which is the theory that we find the traces of a preceding civilization; another, which is just the opposite, is that we shall find a development on this continent entirely separate and distinct from all others. The two extremes are the result of theories rather than actual evidence.

I. We begin with the northern district, that which was situated on the St. Lawrence River, and extended from the

New England coast to Georgian Bay, a region which was occupied by the great Iroquois stock, a stock which was divided into several great tribes,—the Hurons, who were situated north of the St. Lawrence River; the Eries, on the south shore of Lake Erie; the six tribes that formed the Iroquois confederacy in the State of New York, including the Tuscaroras, who were formerly situated south of the Potomac. East of these were the various Algonquin tribes, who dwelt in the region covered now by the New England States. South of them were other Algonquin tribes, such as the Delawares, Powhattans, and the Shawnees; and in the same region were various tribes belonging to the great Dakota stock. Now, it is a singular fact that the relics of the Iroquois, the Algonquins, and the Dakotas, were scattered over adjoining regions, yet they were so unlike in their form and appearance and general character, that it is easy to distinguish them from one another, and so we have the means by which we may ascertain the mode of life which was followed by these tribes even in prehistoric times.

The Algonquins of New England never built mounds and, therefore, their relics are left out of the account, and we are shut into the limited district covered by the Iroquois and their congeners. It is to be noticed that throughout this entire region there was a peculiar form of clay pipe, which is easily recognized as belonging to the Iroquois stock, and which we are able to identify wherever found. (See cut.) No such pipes were ever wrought by any other stock, though stone pipes having somewhat the same shape have been found further west. Many of these pipes are portraits and are made to represent the human form, though it is difficult to recognize a resemblance to people. The pottery found in this district was of an inferior grade, and was generally plain and coarsely wrought. The wampum belts were more numerous among this people than any other tribe, and were generally wrought with great care and were preserved as tribal possessions.

Copper relics were not so numerous as they were among the tribes farther north and west, for the reason that the coppea mines were at a distance and were in the territory belonging to hostile tribes. Still, the discovery of copper relics at a considerable depth on the south shore of Lake Ontario shows that copper was used by these people in ancient times. Mr. W. M. Beauchamp says:

> Besides one hundred and thirty-five copper beads found in a grave, five miles north of Schenectady, Mr. Van Epps reported a native copper axe in the American Antiquarian for 1894, found twenty years earlier. Mr. J. W. Nelson reported a fragment of native copper with silver veins, and a double-pointed knife, four inches long. In 1901 Mr. L. Ogden of Penn Yann, obtained a fine copper spear, six inches long. Copper articles were fouud in opening a mound at Mt. Morris, in 1835. Among Canadian relics is a native copper knife, found with two others on Wolf's Island.

A native copper celt with flanged socket, and a native copper knife from Plattsburg, also native copper spears from

Saratoga Lake, copper celts from Seneca River, copper spears from Cayuga Lake, another from Oneida Lake, two native copper spears with flanged sockets from Oswego, N. Y.; a copper knife from Venice, N. Y.; a copper axe from Auburn, copper celts and arrows from Oxford and Pompey, and a large number of other relics, are depicted in Mr. Beauchamp's Report.

Horn and bone implements are very numerous. They consist of bone awls, bone pins, bone knives, spatulas, bone arrows, bone chisels, punches, needles, whistles, beads, pendants, besides a large number of bone and teeth ornaments, such as beads, bear's teeth, bone carved as human heads, bone pipes, crescents, bone images, combs, and along with these, implements used for fishing, such as fishhooks, harpoons and spears, in great variety of patterns. These also are depicted in Mr. Beauchamp's report on horn and bone implements.

Occasionally there are found in the Iroquois district ornaments made of slate, which resemble those of Ohio, but they

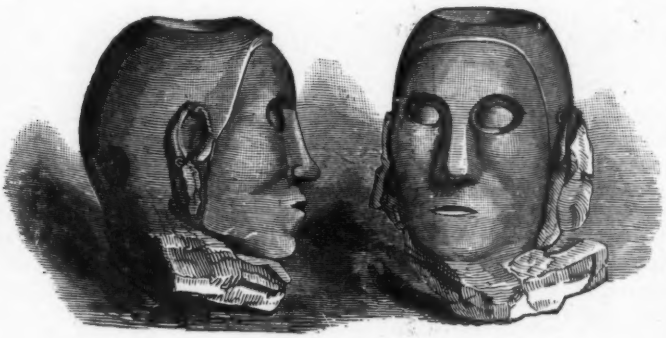
Maces and Badges from Ohio.

were probably gained in trade, and were not common among the Iroquois. By far the most common relics are those which were used in war, such as spears and arrows. There are in the New Yotk collections large numbers of pestles which were used in pounding the grain. Most of them were straight in shape, without a flange at the end. Some of them were three feet long, and were probably used in deep mortars made of wood.

II. The second district is very interesting because of the fact that the art of the Stone Age was so much more advanced there than it was elsewhere, and especially because of the fact that so many different tribes passed through the region, each leaving traces of themselves in the relics which have been discovered. This was the home of the Mound-Builders "par excellence," for the mounds are found here in greater number and in greater variety than in any other part of the continent, and in fact in any part of the world. What is more, the

mounds contain a greater number of relics. Some of them show a great proficiency in art. This district is situated in Southern Ohio, and extended from the mouth of Grave Creek in West Virginia to the mouth of the Miami River, but included its tributaries and all the region both sides of the Ohio River between those two points.

The relics and remains are found at different depths, and so present different "horizons," but they are all so highly wrought and so well finished that it is easy to distinguish them from those which were left by later Indian tribes. These horizons show that there were different tribes which dwelt in the region during the mound-building period, each of which was considerably advanced in their art. It is difficult to decide what these tribes were, but if we take the traditions which are still extant among the tribes which formerly dwelt in the Mississippi Valley, but are now in the Indian reservations, we may at least



Portrait Pipes from Ohio.

form conjectures in reference to them; especially as the Cherokees and Dakotas both have a tradition that their ancestors dwelt in this region. There is a tradition that was long extant among the Iroquois, that they at a very early date united with the Delawares in carrying on a war with people who were situated on this river and dwelt in villages that were thoroughly fortified, but after long and bloody conflicts they were able to overcome them and drive them out from their possessions. The date of this event is unknown, but it is probable that it was before the time of the formation of the Iroquois confederacy, and perhaps soon after the Iroquois had come into possession of the territory which they occupied at the opening of history, for they speak of migrating together with the Delawares across a great river, and first carrying on a war with the Snake people, and afterward with the people who lived in villages. The interpretation of this story has varied according

to the author who has made a record of it. Heckwelder, who was a missionary among the Delawares, represents the great river, which the two tribes crossed before they entered the Mound-Builder territory, as the Mississippi River; while Dr. Horatio Hale and Dr. D. G. Brinton, judging from the study of languages and the names, as well as the original documents and picture records, concludes that it was the St. Lawrence rather than the Mississippi, and that the contest occurred before the two tribes had become settled in any permanent territory.

Portrait Pipe from Tennessee.

The point we shall make in this connection is, that there were two distinct tribes formerly situated on the Ohio River, as well as two tribes that crossed the "Great River." One was called the Snake People, because of the fact that the snake or serpent was their great divinity and tribal totem. The other was the people who were at the time called the Alleghewis, and, according to all authorities, were identical with the Cherokees. This conjecture is confirmed by the fact that there are still to be seen mounds and earthworks in Ohio which are quite distinct from one another, both in character and location. The Great Serpent at Brush Creek, in Adams County, differs in nearly all respects from the earthworks which are found in the Scioto Valley, giving the idea that they were built by two distinct peoples.

Portrait Pipe from Ohio.

The conjecture formed by the study of the mounds is

that the people who built the Serpent Mound were not contemraneous with those who built the village enclosures, but preceded them; and the tradition represents the wars with the Serpent Nation and the Alleghewi as carried on by a long succession of chiefs.

It is also a remarkable fact that the Dakotas have a tradition among them that they once occupied the valley of the Ohio, and lived in villages and were tillers of the soil; but after the appearance of the buffalo herds in their midst, they changed their mode of life and became hunters, and followed the herds until they reached their later habitat, west of the Mississippi River on the banks of the Missouri River. Now, the point which we make is this: the serpent effigies which have been found in the Dakota territory and on the Mississippi and Missouri Rivers at various points, so resemble that found in Southern Ohio that they convey the impression that the same people built the serpent effigies wherever found. But the relics which have been found in the altar mounds and the earthworks which constituted the village sites near those mounds, so resemble those which are found in the Kanawha Valley and the Cherokee territory that they have given rise to the theory that the Cherokees were actually the people who built the majority of these earthworks. The relics found in the ash-pits, and the structures which have been found near them, so resemble those found in the Stone Graves, that the conjecture is forced upon us that the Shawnees were the third tribe that occupied this region before the date of history.

Now, the record which is contained in the earthworks and relics is never so reliable as that which comes from the art of writing; but if the study of relics or earthworks is of any value to science or history, we ought to gain from it information in reference to the succession of tribes and the periods of occupation, and separate them from one another. We maintain, however, that this work of interpretation has been hindered more than helped, by the various attempts to identify the Mound-Builders with the Indians, for the term "Indian" conveys the idea that they were all contemporaneous and on a common level; whereas the other term "Mound Builder," conveys the idea of great antiquity and suggests the thought that there may have been a succession of tribes during the mound-building period. The social status of the Indians is supposed to be the same among all the tribes, and on this account it would be very difficult to draw a distinction between them were it not for their language and physical appearance; whereas there was a great contrast among the Mound-Builders in their social status, their art products, their mythological systems, their religious symbols and ceremonies, and all that went to make up their inner and outer life.

We think generally of the Indian as a hunter and a savage, but we think of the Mound-Builder as having some degree of

civilization, and this impression is increased by the study of the relics, especially those in the Ohio Valley. Relics have here been discovered which have so modern a look that there is doubt whether they belong to the historic or prehistoric period, but there are other relics which have such an air of antiquity about them, that there is no doubt whatever but that they belonged to prehistoric times; and, what is more, there is difference enough between them to prove that they belonged to a succession of tribes, and not to one tribe of Mound-Builders. To illustrate: the relics which were discovered just before the Centennial Exposition in Chicago, and which came from the Hopewell group of mounds, have such a modern look about them that their antiquity has been doubted by many, and yet it is difficult to identify them as belonging to any known tribe, or to absolutely prove that they were affected by the touch of the white man. On the other hand, the relics which were discovered by Squier & Davis nearly fifty years before, have been acknowledged by all to have belonged to the Mound-Builders' period. A few have thought that even these, especially the carved pipes, were too good to belong to any prehistoric people.

These relics, however, have been subjected to close scrutiny, both in this country and in England, where they are at present, and the universal belief is that they belonged to the Mound-Builders, and prove that the art of the Mound-Builders was higher than that of the ordinary Indians. These relics are distinguished for their highly-polished and delicately-carved pipes, some of which have been called monitor pipes, from their resemblance to the monitors. These carved pipes have been discussed many times. Some have claimed that they were close imitations of the birds and animals which were peculiar to the region; but others contain the figures of birds, such as the toocans, which are only found in Mexico, and of animals, such as the manitus, which were only found in the Gulf States. At the same time there were obsidian arrow-heads from the Rocky Mountains, mica sheets from North Carolina, copper from the ancient mines of Lake Superior, pearls from the seacoast, shells from various distant regions, as well as specimens of cloth and many other articles, all of which reveal a high stage of imitative art; but there were no patterns which could be recognized as belonging to a historic country. The difference between the relics exhumed by Squier & Davis and those discovered by Mr. Moorehead is just this: in the latter we discover patterns and symbols which are known to be common in Europe and are not uncommon in America.

The mica sheets seem to have been cut into patterns by sharp instruments. The spool ornaments seem to have been melted in a mold. The copper axes were hammered into shape by a process different from that common among the Indians.

The conventionality of the symbols and patterns, and the size and number of copper axes, and the peculiar form of the pipes, throw a shade of doubt upon their being of prehistoric origin; and yet they were all discovered in the same locality, and some of them in the same group of mounds as those which have been pronounced by all as a purely prehistoric group. The majority of these relics were placed beside the forms of Indian chiefs, and seem to have been buried as though they were their personal possessions.

This may be said in favor of their prehistoric origin: that the same kind of material was used in these relics which have such a modern look, as was common in all the buried relics of the region—sheets of mica, copper axes, copper spools, pearls, shell beads, obsidian knives and arrow-heads, brown hematite—and many of them were placed upon altars similar to those discovered by Squier & Davis over fifty years ago. The copper bands that surrounded the wrists of skeletons,

Bird Pipe from Ohio.

resemble those which were discovered in Marietta in the early settlement of the place. The bear tusks, flint arrow-heads, flakes, panther teeth, and many other objects show that the people who buried these modern-looking relics were familiar with the wild animals of the forest. The details of this discovery cannot be dwelt upon here, but the "find" forces us to the conclusion that, if the bodies were those of Indian chiefs, they show that the Indians who built the mounds of this region had a wider acquaintance with the products which come from distant parts of the continent, than is usual with the Indians of the present day, and there must have been a wide interchange of products, and no such isolation and separation as has been common since the early days of history.

The cuts show the character of the relics which were peculiar to this district. In these we see that the form and finish of the pipes common here, was very different from that which prevailed elsewhere. We see also that there were various ceremonial objects, which were commonly worn on the person and had a significance at the time which is unknown to us. Among

these we might mention the bird ornaments, which are sometimes called brooding ornaments, and are supposed to have been a symbol of maternity by the women; also articles called the butterfly ornaments, as they have a resemblance to a butterfly. These are supposed to have been used as maces or badges by the chiefs. Spool ornaments were not peculiar to this region, for they are common among the Stone Graves and other localities. These, as well as the shell beads and the perforated tablets and necklaces made out of bear teeth, were the private possessions of persons who were of authority in the tribe or clan, and were, consequently, buried with the body, on the same principle that the jewels and precious things that were found in the treasure house at Mycenæ by Schliemann, were buried as the personal possessions of the king.

It should be said of the Moorehead find, that the imitation of elk horns, made of wood and covered with sheet copper, fitted

Bird Pipes from Ohio.

to a crown of copper, bent to fit the head; the copper plates, which were placed upon the breast, the stomach and the back; the cloth of coarse texture in which was interwoven nine hundred beautiful pearl beads; the copper spools and other implements that were placed by the side; the pipes of granite and the spear-head of agate near the right shoulder, and the pipe of very fine workmanship and highly-polished, constituted the outfit of the chiefs of the Mound-Builder tribe, as consistantly as did the diadems and many other magnificent objects of gold and silver, made the outfit of the proud Mycænian kings, and, if we use the adjective in describing the kings, we see no reason for not using the adjective in describing the chiefs.

This is certainly true. If the carving of pipes, cutting and polishing stone ornaments, sharpening stone axes, perforating stone tubes, chipping flint arrows, mining, cutting and hammering copper plates, and fashioning copper knives and spools, of molding and ornamenting pottery vessels, of shaping and molding and polishing various stone ornaments, and especially

sculpturing the form and feathers of birds, can be taken in evidence, we may say that the art of the Mound-Builders of this region had reached a higher stage of development than was common among the Indians of this or any other locality, and places them on a higher level, as far as art is concerned, than can be ascribed to many who live in the historic period. We find no such specimens of art among the prehistoric mounds of Europe, and our ideas of the Indian are exalted by the study of the relics as well as by the works.

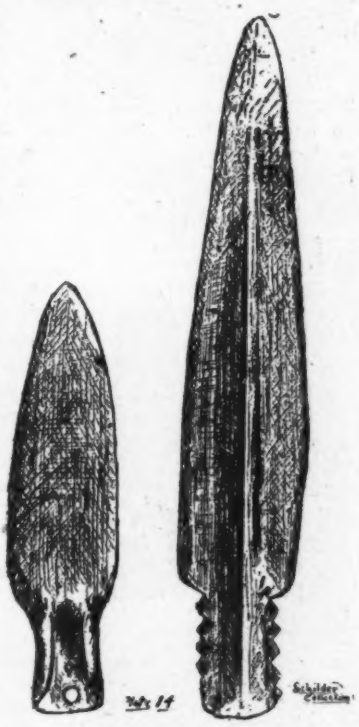
III. The region which lies on either side of the Mississippi River, especially the northern half, is interesting because of the mounds which abound there, especially the relics found in them. It is well known that there is in the Museum of the Academy of Science at Davenport, a large collection, which contains a great many carved pipes resembling those found in the mounds of Ohio, also copper axes which were wrapped in a kind of coarse cloth, many shell beads and other articles, all of which were taken from the mounds in the vicinity. Dr. Cyrus Thomas has founded his argument as to the migration route of the Cherokees on the similarity of the pipes to those found in Ohio, and seems to think that the Cherokees took a very circuitous route; that they crossed the "Great River" somewhere below Lake Huron, moved westward until they reached the Mississippi River, left their relics there and migrated eastward to the Ohio River, and after their long conflicts with the Iroquois, crossed the Ohio River, passed up the Kanawha River, and finally settled in the mountains of western Tennessee, where they were visited by De Soto and his army.

At the same time Dr. Thomas holds the theory that the Shawnees left the shell gorget which was found by Major Powell near Peoria, and those found by General Thruston in the Stone Graves in Nashville, and those found by his own assistants near the Etowah Mound in Georgia, because of the fact that Stone Graves are scattered over this region, and because these gorgets all have figures on them resembling one another.

The salt mines found in Illinois are quite likely to have been worked by the Shawnees, for they were situated in this region at one time, and the name Chaouanans on the early maps, which is applied to the Ohio River, was taken from the name Shawnees and printed with the French spelling; but the claim that the carved and inscribed shells which have been discovered in these widely scattered regions belong to the Shawnees, seems to have come from theory rather than facts. The Shawnees were Algonquins, and were a tribe of nomads and never reached a very high grade of art, or adopted any such mythology as may be indicated by these figures. Mr. F. H. Cushing has compared them to the mythologic figures found among the Pueblos, and called them "man eagles" or "eagle men"; others have compared them to the mythologic figures

found in Mexico and Central America. The only reason for ascribing them to the wild tribes would be the costumes represented, and yet the warriors were dressed about the same everywhere.

The discovery of a shell gorget was made near the Etowah Mound, containing an inscribed figure, which so resembles the image of Buddha, that Dr. Thomas Wilson took it as evidence of contact with the Asiatic continent, and bases his theory on the evidence. It is, however, unsafe to place any theory on these fugitive articles, as unsafe as it was to take the sacrificial scene found on the tablet at Davenport, to base the theory that the story of the Deluge and Noah and his family was recorded in those tablets.



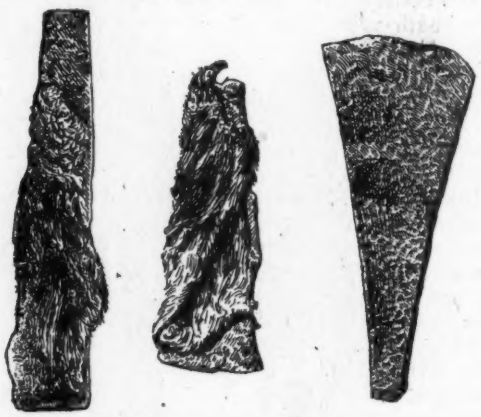
Arrow-Heads from Wisconsin.

There is no doubt that the Shawnees were at one time located on the Cumberland River, and it may be that they borrowed many of the forms of art that the Muskogee tribes had for a long time used, but to maintain that all of these artifacts found in the Stone Graves belong to the Shawnees is certainly misleading. The Shawnees were upon the east side of the river, as were other Algonquin tribes, but the Dakotas were on the west side. A branch of them the Winnebagoes, were on the east side in Wisconsin. There are many finely-carved stone pipes in the Davenport Museum, resembling those found in the Ohio mounds, but the pattern may have been borrowed, or the pipes secured by the Dakotas before the migration to the west.

The discovery, near Davenport, of a large number of copper axes wrapped in coarse cloth, would identify the people with the Dakotas, or, at least, the Winnebagos, who also had a great many copper relics, but would not quite account for the peculiar pipes wnich are associated with the axes. The horizons presented by the mounds do not indicate any great diversity of population, and so do not justily the hypothesis that the Cherokees left the pipes here. On the other hand, the absence

of stone graves in the neighborhood of the Cahokia Mound throws a cloud of doubt over the theory that the Shawnees built that mound and left the relics surrounding them. A more plausible theory is, that we have in this region the meeting place of three great races: the Dakota race on the north and west; the Algonquin race on the east, mainly in Illinois; the Muskogee race on the south, though what particular branch of that race reached the spot is difficult to say.

The Cherokees* belonged to the Iroquois stock, and seem to have left the majority of their relics somewhat near the Iroquois territory in Southern Ohio, and have left their names on the waters of that river. This, then, is the lesson which we learn from the study of the relics and the traditions. The Dakotas, the Algonquins, and an unknown race formerly inhabited the upper part of the Mississippi River, and extended down as far as the St. Francis River, and were there up to the time of De Soto's expedition.



Copper Axes from Davenport.

It is not our object to prove any theory, but the fact that the pyramid mounds so closely resemble those found along the Mississippi River and along the Gulf States, would indicate that a colony from the great Muskogee stock had built up, the large cluster of pyramid mounds which are situated here.

The resemblance of the relics found near these mounds to those found at New Madrid, Missouri; St. Francis River, and near the pyramid mounds scattered through the Gulf States, confirms the impression that they were left here by a branch of the Muskogee stock rather than the Shawnees.

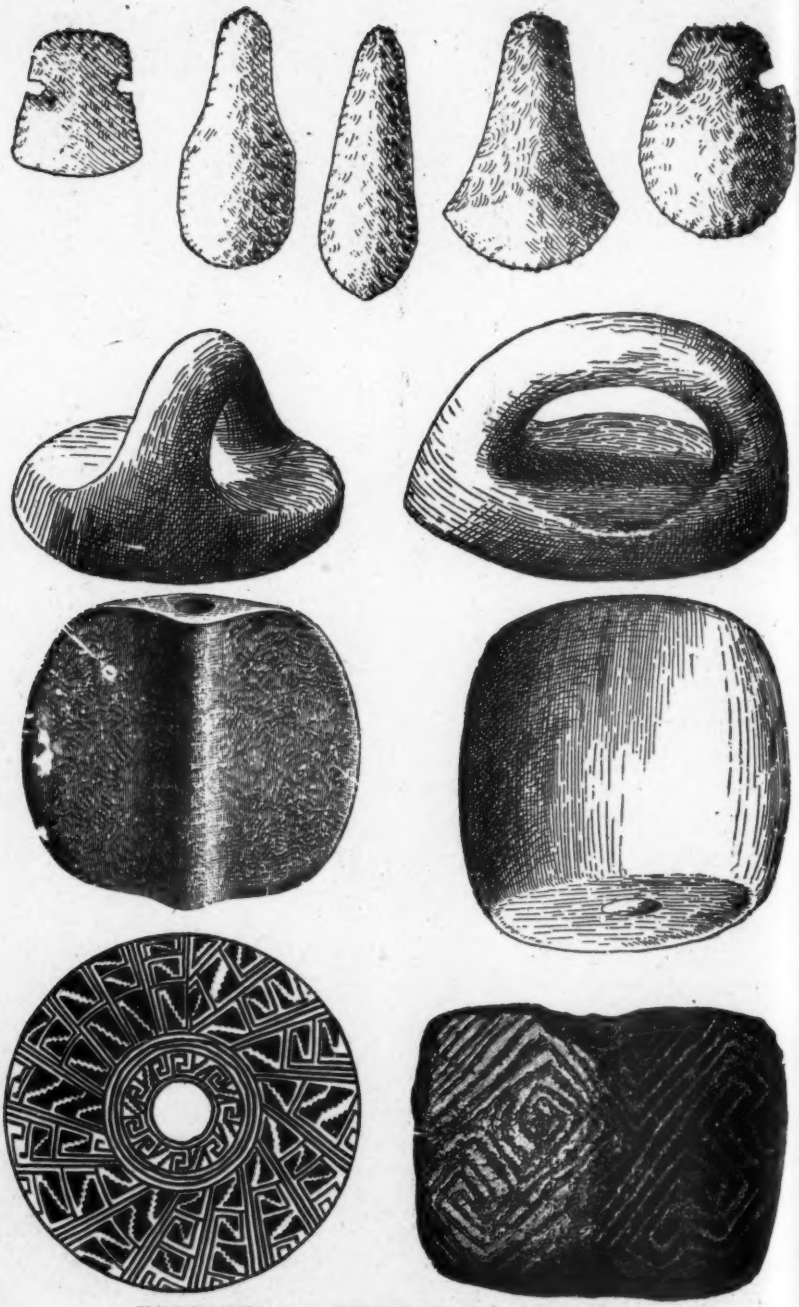
We may say that copper relics are more numerous from Davenport northward than they are below that point, but pot-

* Dr. Hale says: "Following the course of migration from the Northwest to the Southwest, which leads us from the Hurons of Eastern Canada to the Tuscaroras of North Carolina, we come to the Cherokees of Northern Alabama and of Georgia. Recent investigations have disclosed to us the fact that tribes belonging to the Dakotas lived in early times east of the Alleghanies, and were found by the first explorers not far from the Atlantic Coast.

"The country from which the Lenapes migrated was the land of the fir trees; not in the West, but the far North. There can be no reasonable doubt as to the Alleghewi, who gave their name to the Alleghany River, being the Mound-Builders. The evidence of language leads to the conclusion that the course of migration has been from the Atlantic Coast westward. The Basques of Northern Spain have a speech of the polysynthetic character which distinguishes the American languages, and has many of the characteristics of the American aborigines." See American Antiquarian, Vol. V., pp. 118-121.

SHELL GORGETS FROM TENNESSEE.

UNIV. OF MICH.



IMPLEMENTS AND ORNAMENTS FROM TENNESSEE.

tery moulded into the shape of animal figures, gorgets, and stone spades are more numerous near St. Louis than they are anywhere north of that point, though this does not really identify the relics with any particular tribe.

It is to be noticed that the relics partake of the material which is most abundant, at least the best specimens in each locality are made out of the material which abounds in the region. There are no such copper axes, spear heads, spuds, spears with sockets, needles, and chisels, as are those found made of copper, which are common in Wisconsin near the copper mines. There are no such pottery vessels as the beautifully-moulded and finely-grained specimens found near the Cahokia Mound. There are no such large burial caskets, made out of clay, as are found among the Stone Graves of the Cumberland; and yet in all these localities there is a great variety of relics, and many of them show an equal proficiency in art, though it is expended on different material. The same distinction may be drawn in reference to the mounds themselves and the earthworks.

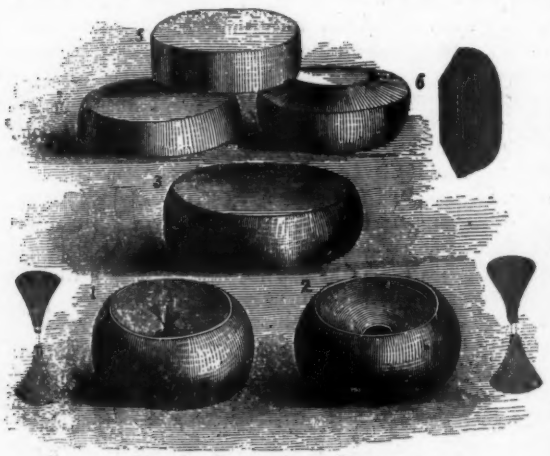
The large number of pyramid mounds situated in double lines across the great American bottom, of which the Cahokia Mound is the chief, proves that the people were industrious and well organized. It was necessary to build the mounds large and high to escape the water during the freshets, but the discovery of large numbers of stone spades and hoes and agricultural implements prove that the people cultivated the soil, notwithstanding the malaria which prevailed and the freshets which frequently flooded the region.

The author has discovered conical mounds with pyramid mounds, and a wide platform between them, which so resembled those common in the Gulf States that they conveyed the idea that here was a "chunky yard" similar to those found in the last mentioned locality. It seems very likely that a branch or colony of the Muskogees passed up the Mississippi River and built the Cahokia Mounds, but that they returned to the south long before the days of history. The resemblance of the pipes and pottery and shell gorgets among the Stone Graves and those found in the Cahokia Mound, may be owing to the presence of the same races on the Cumberland River. The same, possibly, may explain the presence of the copper plates in the Stone Grave near the Etowah Mound.

IV. The region which next calls forth our attention is that which was situated on the Cumberland and Tennessee Rivers. This is the region where so many stone graves have been discovered.

The best authority on the relics of the Stone Graves is Gen. G. P. Thruston, whose work, "Antiquities of Tennessee," is of great value; illustrations from which have been borrowed, and they show the character of the relics found here better than words can describe them. The relics present a great variety

of material and form, but all show considerable skill in construction. In fact, the relics found in the Stone Graves are so numerous and so varied that one can easily reconstruct the social condition from them and gain a picture of the society which prevailed. The study of these relics is something like the study of the relics and remains found in the ruins of Pompeii, for it brings before us a stage of culture which was unique and peculiar to the locality, and suggestive of a people who had acquired a certain rude skill, and had applied it to every department of life, using the material which was at hand, but had buried voluntarily all the specimens of their skill in the graves. One is inclined to draw a parallel between the people who evidently dwelt here in prehistoric times, and the pioneers who afterwards inhabited the region, for both classes of people seem to have manufactured their own tools secured their own materials with which to make themselves comfortable and carried on their industries without introducing anything from a distance.

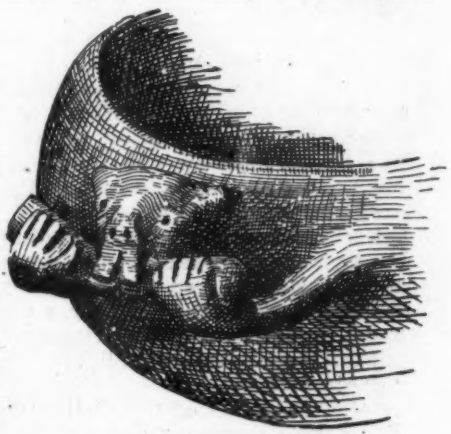


Chunky Stones from Tennessee.

The introduction of gunpowder, the invention of the loom, and the use of the steel axe gave great advantage to these pioneers; yet when we consider the houses which were erected within the stockade forts, which were plastered on the inside, and remember the scenery and resources of the region, we may well imagine that the difference between savagery and civilization was not so great as some have imagined. It is not often that this comparison is drawn, yet if we take the relics which have been discovered among the Stone Graves, and compare them to those which were used by the pioneers, we will find that there were many points of resemblance, for the same kind of tools, utensils, implements, and weapons are apparent in both, and we are obliged to give the same names to them, notwithstanding the fact that the materials are so different.

Under the head of tools we find knives, axes, chisels, awls, mauls made out of stone, which resemble those made out of

iron; we have such weapons as daggers, spears, dirks, knives, arrows, resembling those made out of steel. Under the head of utensils we find plastering trowels, pottery stamps, paint grinders, mortars for grinding corn, pestles for pounding, made out of stone and bearing the same shape as those made out of iron or wood. Under the head of agricultural implements we have scrapers, hoes, spades, made out of stone, instead of iron; many of the hoes have the same shape. For domestic use we find dishes, cups, spoons, and many other articles made out of shell. We find pots, kettles, bowls, basins, jars, bottles, made out of pottery ware; needles, awls, chisels, instruments for polishing, smoothing and cutting, made out of bone; textile fabrics and skins made into various garments; planting sticks, rude looms, spear handles, as well as bows and arrows, made out of wood. Besides these there were many articles whose use is unknown, but they so much resemble those in common use at the present day, that we give to them names which are familiar and common, such as buttons, spools, pulleys and wheels, ear ornaments, rings, amulets, some of which are made of copper. Even child's rattles and marbles have been found, and many other toys in imitative shapes resembling animals and human figures. These bring the domestic life before us. The social life is also made apparent by the number of pipes which have been found, some in what might be called "trumpet" shape; tubes, cylinders, monitor pipes, platforms and discs; others have imitative shapes resembling animals, birds with wings spread, as if flying; others with their wings folded; pipes in the shape of ducks being very common. There were also stone pipes in the shape of wild animals, others in the shape of human images with the bowl upon the shoulder, others seated holding large jars in front of them, others in kneeling posture with bowl in the back.



Pottery Bowl from Tennessee.

The agricultural and mechanical implements were numerous and were generally made out of stone. Some bear the shape of notched hoes, axes, paddles; others were leaf shaped; others with a square blade, notched in the upper part; spades or shovels similar to those found in the neighborhood of the Cahokia Mound. There were double-barbed spears, notched

swords, sceptres, ceremonial objects carefully flaked, chipped stone hooks and stone claws, flint discs, and stone turtles.

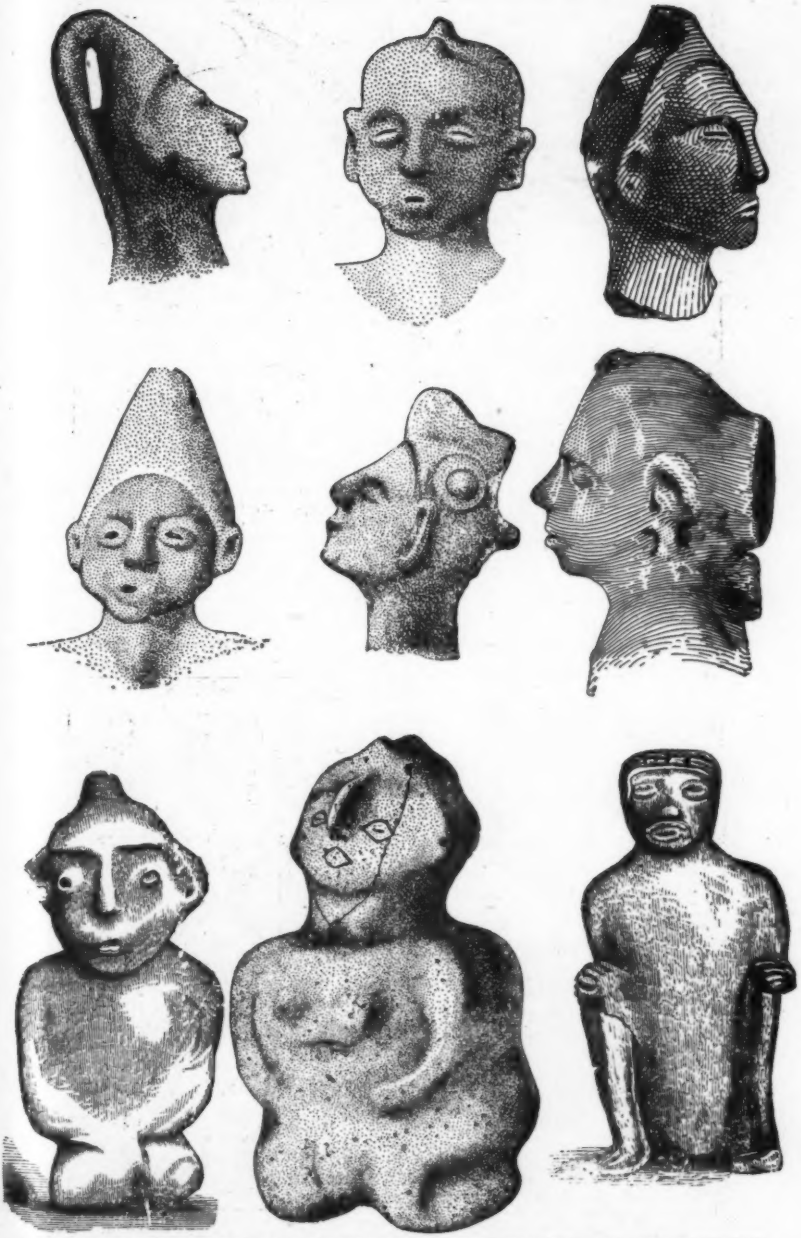
The pottery vessels show much skill in moulding clay into imitative shapes, for we have a great variety of bowls and dishes in the shape of ducks, frogs, fishes, toads, and birds of various kinds; others presenting lizards and animal figures and paws molded into shape, and raised upon the outer surface, or serving as handles upon either side. There are no such finely-carved pipes as are found in Southern Ohio; no such delicate work or pains taken in imitating the feathers and forms of birds, and yet the pottery vessels were wrought into human shapes with such skill that one may easily recognize the features of the people, and imagine a personal semblance that make them appear as portraits. In a few cases the bear and the dog are represented, even the panther and other wild animals, with much skill and taste.

The shell gorgets are the most interesting of all the ornaments found in Tennessee. They represent serpents coiled up so as to make a circle, spiders with legs spread, the whole surrounded by four circles. Shell gorgets with human figures engraved upon them, are very interesting. One such represents two warriors armed with stone knives and stone hooks, who seem to be fighting with one another, but they are clothed in a symbolic manner, as wings extend from the face, claws from the feet, and yet they are clothed in such a way as to represent the style in which the warrions were arrayed, as they have belts about the waist, two sets of bands around the arms and legs, the spool ornament in the ear, a peculiar badge or mace in the hand, the head decorated with a single plume. The wings and tail of the eagle are well represented. They are called the "Eagle Men."

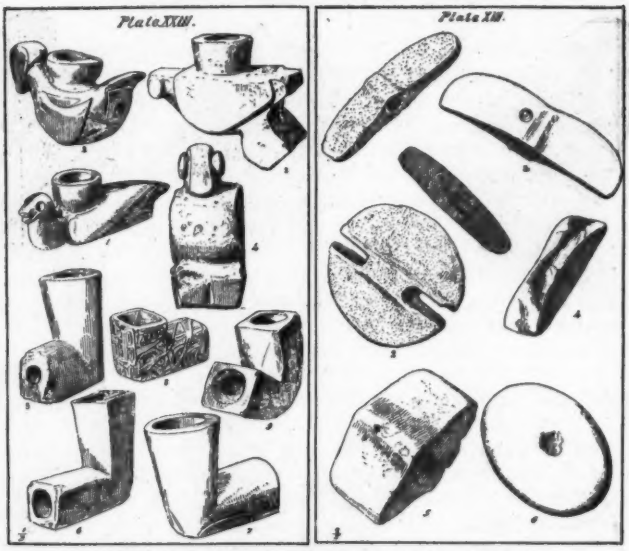
V. The relics of the Gulf States remain to be described. These were first seen and described by Cabeca de Vaca, and the various writers who accompanied De Soto; next by Bartram, the famous botanist and traveller; afterward by Mr. C. C. Jones in his excellent book, "The Antiquities of the Southern Indians"; and still later by Mr. Clarence Moore, Mr. A. E. Douglas, Mr. F. H. Cushing, Mr. A. S. Gatschet, and others.

They may be classified according to the geographical districts in which the various tribes were formerly situated, or according to material used, or the earthworks with which they were associated; but they all present peculiarities which distinguish them from those in the northern districts.

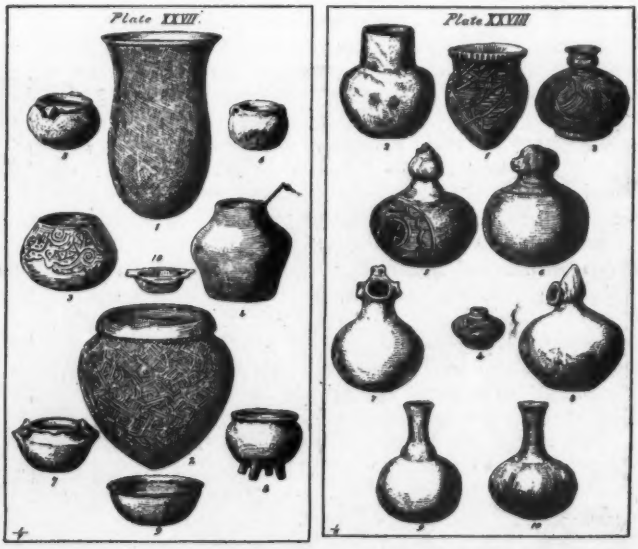
It may be said that there were at the time of the Discovery several different tribes situated in the Southern States,—the Seminoles in Florida, the Creeks in Georgia, the Chicasaws, and Choctaws in Alabama and Mississippi, the Natches in Louisiana, and the Cherokees in eastern Tennessee; the first have been described by Mr. Clarence E. Moore.



PORTRAIT PIPES AND IDOLS FROM THE STONE GRAVES AND GULF STATES.



PIPES AND MACES FROM THE GULF STATES.



POTTERY VASES AND BOTTLES FROM THE GULF STATES.

It would seem from Mr. Moore's account, that the tribes formerly situated in Florida had more and larger pottery vessels than any other, many of them in imitative shapes. The Muskogee tribes had more idols and carved stone relics and shell gorgets; but the tribes situated in both Eastern and Western Tennessee had more shell gorgets and copper plates than any other. Some of these copper plates have been considered by Dr. Thomas as very modern and bearing the touch of the white man, and in one found near the Etowah Mound Mr. Thomas Wilson has recognized the image of Buddha.

Copper relics are quite numerous. The natives that De Soto met spoke of copper mines in the mountains of Appalachee, and the whole army was led into the mountain region in hopes of discovering gold.* In passing through the towns between the coast and the mountains, they found many large towns or villages; in one of which—Talemeco—was a temple with three gates, one of which was guarded by gigantic wooden statues, variously armed with clubs and wooden vases, canoe paddles, copper hatchets, drawn bows, and long pikes which were ornamented with rings of pearl and bands of copper.

The relics which are peculiar to the Gulf States have been described by Mr. C. C. Jones. The most interesting of these consist of pipes, which may be divided into different classes: 1. The idol pipes, which are always associated with the large pyramid mounds, and frequently represent the human figure, upon the knees in an attitude of devotion, clasping an urn-shaped bowl; head thrown back; forehead retreating; eyes upturned. 2. The calumets, among which are the bird-shaped pipes made of serpentine, oolite, feldspar, gneiss, mica, slate and soapstone. Some of these are seven inches long, three inches high, and two inches wide; the walls of the bowl half an inch thick. They are generally found in the mounds and in the fields, and may be regarded as the public property of the tribe, or the private property of the chiefs and medicine men. The stone pipe in the shape of a panther is depicted by General Thruston in his book. The panther was the totem emblem of the Creeks or Muskogees; the wild cat was the totem of the Chicasaws. The discovery of these bird pipes in the Stone Graves is very significant. 3. The common pipes were made of stone and clay, and were generally used with a reed stem; some of them represent the human face.

4. Another class of relics consists of maces or double-bladed axes. Mr. C. C. Jones says:

NOTE.—Mr. James Mooney has made a close study of the route taken by the Spaniards. He maintains that after passing up the Gulf, where they found the forts amid the swamps, they came to the province of Cutifachiqui and, accompanied by the queen, they marched toward the mountains, where they were met by the Cherokees. Crossing the Blue Ridge, they came at the end of a month to the town of Guaxula, where the people came out to meet them dressed in robes of skins, who gave them three hundred dogs for food. They passed down the Chattahoochee, and came to Cauasauga, a frontier town. They marched southward toward the Gulf, passed through Tuscaloosa, and finally reached Mobile.

These ceremonial axes occur frequently in the relic beds along the banks of the rivers where the natives congregate for fishing. The most of them are broken. Their edges are not sharp. Fashioned principally of a talcose slate, they were unfit for service, and must be regarded as ornamental or ceremonial axes. They vary in size and form, the most of them being less than six inches in length and very light. Three of them were found in a grave mound in Louisiana, made of quartz; marvels of symmetry, and polished to the highest degree; evidently intended for ornaments or badges of distinction. One, made of diorite beautifully polished, is four inches long and an inch and three-eighths in diameter (Fig. 4). Another, made of syenite (Fig. 5), measures four inches in length and two and three quarters in width, weighing twenty-seven ounces. In another (Fig. 2), the drill hole had not been completed. Another (Fig. 3) is wing-shaped, and is made with points around it, but not brought to a cutting edge, made of slate. Another is made of close grained diorite, beautifully polished, four inches long. This was an ornamental or ceremonial axe, intended for display, and not for use. (See Plate.)

5. Another class of relics consists of chisels and gouges. Of these Mr. C. C. Jones says:

They are made of green stones in sockets of wood, and stag's horns of bone, similar to those found in the Lake Dwellings of Switzerland. The gouge differs from the chisel in that it is larger and stronger, having one side scooped out and the other rounded. Bone gouges are made of the leg bones of the deer and buffalo. These were obtained from mounds, shell heaps and relic beds gathered upon the sites of ancient villages and fishing resorts, or plowed up in cultivated fields.

The discoidal stones are common in the Gulf States. They are all circular in shape, with diameters varying from one to six inches. Many are flat on the sides, slightly convex, hollowed out on both sides. The cavities are circular and four inches in diameter. One has four cavities, two on each side, precisely similar and one within the other; the depth of the outer, five-eighths of an inch, and the inner, three-eighths of an inch; the rim one-quarter of inch thick. The general distribution of the stones shows that the game was in common esteem among the various Georgia tribes.

6. The pottery of the southern Indians is superior to that manufactured by the northern tribes. In some of the Southern States, kilns in which the ancient pottery was baked are now to be met with. In the Etowah Valley kilns constructed of water-worn stones have been discovered. One of the best specimens of burial urns (Fig. 1, Pl. XXVII.), 15½ inches in height and nine inches in diameter, contained the bones of a young child. The urn taken from an earth mound near Sparta (Fig. 2), is 14 inches high, 14 inches in diameter, and has the pattern of wicker work. A numerous class of flat-bottomed jars are represented by Figs. 3 and 4. Figs. 5, 6, 7 and 8 represent pots with ears and legs; while in Figs. 1 and 2 next Plate, we find the wide-necked jars; and in Figs. 3, 4, 5, 6, 7, 8, 9 and 10 bottles taken from the Grave Mounds.

EDITORIAL NOTES.

PROF. PUTNAM AND THE DREXEL MEDAL. The award by the Provost of the University of Pennsylvania, of one of the first Drexel Gold Medals to Prof. F. W. Putnam, is a deserved recognition of his work on American Archæology. The three other medals were awarded to: Prof. Petrie, for work in Asia Minor; to Prof. Evans, for his excavations in Crete, and to Prof. Heilprecht, for his excavations in Babylonia. Prof. Putnam has been since 1895 at the head of the Museum in New York, as well as the Peabody Museum at Cambridge, Mass. It is at Cambridge that the sacred objects of the tribe of the Omahas, which were collected by Miss Alice Fletcher, are on exhibition; also the collection of Zuni relics collected by the Heminway Expedition, the splendid relics and casts from Copan in Honduras, the so-called "paleolithic" relics from the valley of the Trenton, the aboriginal relics from New England, the models of aboriginal dwellings, the Calaveras skull, relics from the Stone Graves and many other locatities. The editor of THE AMERICAN ANTIQUARIAN sends his congratulations on the honor thus conferred.

OLD EXAMPLES OF BASKETRY from California, Arizona, Puget Sound, Washington, and Oregon; baskets from Pimas, Apaches, Utes and Navajos; pottery vessels from Florida; the ethnological collection from the Maldine Island, the gift of Dr. Alexander Agassiz, should be mentioned in this connection.

WAS PRIMITIVE MAN A SAVAGE? An article by Talcott Williams in the Annual Smithsonian Report for 1896, claims that primitive man was a savage, and holds that the relics of paleolithic man point to his wandering over various parts of the globe. Mr. Frederick G. Wright, in a recent article in *The Record-Herald* in Chicago, takes the other side of the question, holding that primitive man in Egypt began with a high civilization, and degenerated. The discovery of the pre-dynastic race, buried in graves with pottery vessels around them in a circle, proves that earlier man in Egypt was inferior to the race that followed.

JOSEPH PRESTWICH was associated with the discoveries of Boucher de Perthes in 1847. He was awarded a medal by the Society in 1865.

MR. F. C. PENROSE, architect and archæologist, died recently at the age of eighty-five. He was associated with Norman Lockyer, and gave much attention to the orientation of temples. He was a fine scholar and excellent observer. He was careful in drawing his conclusions, and has made his mark upon the archæology of the period.

ANCIENT PERUVIAN ART. A few years ago Dodd, Mead & Co., published a sumptuous book, entitled "The Cemeteries at Ancon," in which were illustrations of the textile fabrics of ancient Peruvians. The same firm has recently published in company with Asher & Co., of Berlin, Germany, "Ancient Peruvian Art"; or, "Contributions to the Archæology of the Ancient Incas," in which the pottery of Peru is splendidly illustrated, the specimens being in the possession of Arthur Brassler; the letter-press translated by A. H. Keene. It is a very valuable contribution to the archæology of Peru.

"THE ARGIVE HERÆUM" by Charles Waldstern, published by Houghton & Mifflin, is an interesting book. Argos subdued the other cities of the district, such as Mycenæ, Tyrins and Medea, at an early date, and became a political center. Pausanias claims that Mycenæ was destroyed about 480 B. C., but the ruins contain no coins, no inscriptions, and no writing, and the conclusion is that it was destroyed before this date. Arthur Evans has found clay tablets in Crete, showing that writing was common at an early date.

TUNIS. Excavations in Tunis have laid bare Roman remains of much interest.

THE LION OF CHERONEA. This monument, erected in honor of those who fell in the battle of Athens and Thebes against Philip of Macedon, is to be restored by the Greek Government.

GEZER has a continuous history from pre-Israelite times. Its site has been recently explored by Clermont Ganneau, who has discovered a bi-lingual inscription in Hebrew and Greek.

ARBOR-LOW and other stone circles have been recently explored. No Roman relics and no bronze relics were discovered, and yet the triliths were wanting, probably having been used in lime burning.

BAALBECK. The work of exploring this temple, under the patronage of the German Emperor, is nearly completed. In the center of the whole is a great rock altar—rock hewn—but the later buildings are constructed in the Roman style; a magnificent colonnade being the chief object.

EDUCATION for March contains an article on "Ancient Salem," illustrated; also "Some Relations of American Art to American Life," by Prof. Frank Sawvel. This is one of the best of our exchanges. It has reached its twenty-third volume, and is only two years younger than THE AMERICAN ANTIQUARIAN.

THE ANTIQUITY OF WRITING is known from the study of the Rosetta Stone, which was deciphered by Champollion in 1830; second, from the interpretation of the Behistun Inscription by General Rawlinson in 1850; third, from the Moabite Stone; fourth, by the Tel el Amarna Tablets, deciphered by Prof. A. H. Sayce and others; fifth, from the Minean Inscriptions, interpreted by Mr. Glazier, and sixth, from the discoveries made by the Babylonian Expedition of the cuneiform inscriptions, which have been deciphered by Prof. Heilprecht, Prof. Robert Harper, and others.

THE ALPHABETS were all derived from picture writing, but appeared in separate centers. In Egypt very early; also in Phœnicia and Crete. Two-thirds of the Phœnician pictorial types are found in the palace of Knossos at Crete, and not one has been identified in Egypt. The Mastabah of Pta Hotep contains 400 hieroglyphs; but not one resembling the Phœnician alphabet. The cuneiform goes back to the reign of Ur Gur, and earlier, when pictographs appear. The Minean alphabet, studied by Glazier, in the wilderness west of the Tigris, is between the Phœnician and the cuneiform. The Chinese writing is pictographic and syllabic, but had a distinct origin. Many writers hold that the Chinese language came from the Accadian, which preceded the Semitic. The Chinese may have separated and migrated before the alphabet was invented. The cuneiform alphabet opens the door to the literature of the Medes, the Persians, the Babylonians, the Assyrians, the Elamites, and old Accadians, which go back respectively to the following dates: 700 B. C., 1200 B. C., 2200 B. C., 3800 B. C., and 4500 B. C. The Deluge tablets and the Creation records were discovered by George Smith. The seals which treat of the conflict of Marduk and Tiamat were secured by the Wolfe Expedition, and have been interpreted by Dr. Ward. The tablets that give the myths of the earliest period were discovered by the Babylonian Expedition.

THE ANTIQUITY OF LITERATURE. The discovery of these cuneiform tablets revealed the fact that libraries were in existance as early as 3500 B. C., and continued up to the time of Alexander the Great, when the great library at Alexandria was burned. These libraries were devoted to religious subjects, commercial affairs, and the interests of government; but the poetry and the literature of the ancient times resembled that of more recent times in the Middle Ages, when the Minne-singers were the means of making known the mythologies which prevailed. Homer was the great poet, and is supposed to have recited his poems, for it is unknown whether he wrote it out or repeated it so often that others wrote it from memory.

The sacred literature of the Bible may have been at the first, preserved in the same way as a matter of tradition, rather than of manuscript or

libraries, the probability is that the Ten Commandments were actually engrossed on stone. The "Song of Miriam" was probably preserved in the memory of the people. The story of Joseph and of Moses, as well as the Exodus and other events recorded in the Bible, was undoubtedly preserved in the memory of the people, though there is good reason for believing that it was committed to writing, as writing was practiced by the Egyptian, a thousand years and more before the days of Moses. There are certain analogies between the story of Joseph and a certain Egyptian story of the two brothers, but this is just as likely to have been borrowed from the Hebrews, rather than the Hebrew story from the Egyptian.

WRITING AND LITERATURE IN AMERICA. The analogies between the method of communicating thought and preserving traditions in America and those common among the primitive nations of the East, are worthy of notice. In America this work was always accomplished by the medicine men, by the priests, and the few who were especially trained for it. There were also sacred mysteries in America, as well as in Greece; and in these mysteries the religious life of the people was kept alive. The tradition and the history were also preserved by means of these sacred mysteries. The Mida Songs of the Ojibwas are well known. The Megis, or "medicine bag," was as sacred as the Ark was to the Israelites, or the "mysteries" were to the Greeks, or the mithra rites were to the Persians. With the Persians there was a perversion. The chief ceremony consisted in the slaying of the ox and the shedding of his blood, but there was no sense of sin, or purification for sin; whereas in the mysteries of the Ojibwas there was an entire absence of such a rite, but the work of purifying and preparing the person to enter the sacred lodge and to tread the path of the soul, was by receiving the supernatural gifts, rather than by the external sacrifices. In the ceremonies of the Haidas, the same system prevails. Sickness is caused by an evil spirit, which must be expelled, and a new life must be imparted from the supernatural powers.

ANCIENT HOUSES OF THE MEXICANS were described by Pomar in the year 1583. The form of the construction is low, with no upper story whatever; some of them are built of stone and lime; others, of stone and clay. The covering is of beams. Most of them enclose a court, around which are the rooms which they require; the dormitories and reception room of the men on one side, the women on the other. The houses of the principal men or chiefs are so large and have such massive woodwork, that it seems almost impossible that human strength and industry could have put it in place. More than one thousand men might be lodged in them They stand on platforms, the lowest of which are one fathom high; the highest, five or six. The largest halls are twenty-five fathoms long, and as many wide. They are square, and in the middle have many wooden pillars on blocks of stone, and on these the rest of the woodwork is supported. The rooms have no outer doors, only doorways with wooden pillars. The tenure of lands was communal. The lots were held in possession, and not by actual ownership. The male descendents alone have a share in the cultivatable land. The fields were small. Aboriginal agriculture was limited to but few objects—maize, cotton, cochineal, beans, pepper, and the magive.

STATUARY IN MEXICO. There are indications to the effect that statuary made for worship was always composite: that is, the central figure was surrounded by forms, denoting attributes, so as to give a confused, almost nondescript appearance, of which the great idol of Huitzilopochtli is an example. The Chac-mool is a case in point: this is a reclining figure, made of limestone, and was exhumed at Chichen-Itza by Dr. Le Plongeon; a second statue of black volcanic rock was found at Tlascala, and a third at Tacubaya. A fourth, which is a torso, was found in the State of Pueblo, near Popocataptel. Sculptured statues have been found in the West Indies, which are symbolic and represent the Island divinities. These are lying on the ground, with the head and feet partly raised, and have what appears to be the represetation of a mountain peak resting upon the back. They are very singular in shape, contrasting with those just described.

THE PHŒNICIAN was the only nation of the Canaanites which continued to occupy a conspicuous place in the history of art. Nearly all the tribes of the interior remained in their condition as agriculturalists and nomads The only tribe that succeeded in founding a State was the Khita, or Hittites, who settled in northern Syria about 1600 B. C. The Phœnician goddess was Astarte. At least she had a more real personality than any other. She was the Istar of Messapotamia. She was identified with the moon, and was the same as the chief goddess of the Greeks, Venus. Astarte was the personification of nature. She presided over a never-ending process of creation and destruction, As in Egypt and Chaldæa, the spectacle of an original world in which all life sprang from the union of the sexes, suggested the thought that the same condition existed in the divine world; every god had a goddess. The same belief existed in Central America. There, a goddess presided over agriculture and child-birth, and was represented as holding a child in her arms. She was the Astarte of the Mayas, and was worshipped in the same way. It is unknown whether she was identified with the moon, yet there are symbols which suggest the thought. The sun-god was represented as a face suspended to a cross, which was seen in the rear of the shrine at Palenque.

THE HELLENIC CALENDAR. Each Hellenic State had a calendar of its own. The Sothic Circle began the Era of 2280 B. C. and continued for 1,460 years, but a Sothic month was 120 years. The number four was as sacred in Greece as in America. There were four pillars of Heaven; four chief gods over four elements: Zeus over the air, Poseidon over the water, Persephone over the earth, and Pluto over fire. In the astronomical myths the gods of many nations are connected with the signs of the Zodiac; the planets do not come into the mythology, but the names of the constellations come from the Greek. The symbolism of color dates back to the time of Ramses II., and is referred to in Greek mythology. The universe is in three stories: the Heavens above is the abode of the gods; the Earth, the abode of the living; Hades below is the abode of the spirit of the dead. In America it is the same, except that the ancestors were living in caves below the earth, and came up through four successive stages.

THE TEMPLE OF ON, OR HELIOPOLIS, existed before the time of Menes and the pyramid builders. The various worships of Thebes were depicted in the orientation of the walls. The orientation of the obelisks shows that the temple of which they formed a part, may have been the first of a series of temples which included those of Thebes and Abydos, and were stellar temples. The stellar were later than the solar, as solstitial worship was later than the equinoctial. The pyramid builders came from a land where the worship was equinoctial, for they are oriented east and west, thought the early pyramids are like Ziggurats.

ASSYRIAN GIRLS covered with jewels, dressed in rich stuffs with bright colored fringes, their black and glossy tresses held with scarfs of brilliant colors, mingled with flowers and blossoms; eyes that glissened under long eyelashes, beneath the arch of dark eyebrows; the freshness of their red lips; necklaces of gold hanging between the breasts, was an interesting scene to the Oriental devotee; but the same scenes were common in Central America, when the priest kings were in the ascendency and the people were subject to their authority.

BIRS NIMRUD on the west bank of the Euphrates below Babylonian, marks the site of an ancient city. Kirjath Sepher (book town) was destroyed by the Israelites, but was in existence long before the Exodus, and Gaza or Gath, and Tyre are mentioned in the Tel el Amarna tablets, and are marked by heaps of earth. The sacred sites of the Hebrews are not easily identified, but other mounds give hints as to their locality.

THE ANCIENT CITIES OF EUROPE are on the very sites which were occupied during the Stone Age, and frequently pile structures and megalithic monuments and crannogs are found which illustrate a neolithic stage of culture. Arrow-heads, spear-heads, bone implements and needles are found among the Mendip Hills,

BOOK REVIEWS.

MEMOIRS OF THE PEABODY MUSEUM OF AMERICAN ARCHÆOLOGY AND ETHNOLOGY. Harvard University. Vol. II., No. 2. Researches in the Central Portion of the Usumatsintla Valley; Reports of Exploration for the Museum, Part Second, by Teobert Maler. Cambridge: Published by the Museum, 1903.

This Report is very interesting and valuable, in fact the most so of any that have been issued by the Museum. Mr. Maler is indefatigable in his work. He has made his residence for some time in the region where ancient cities are most numerous, but are hidden in the forests and remote from public thoroughfares. He does not dig up or take away relics, so continues his work without molestation from the authorities, who are quite jealous for fear their relics will be taken away.

The discoveries which have been made in this way rival those made by Stephens and Catherwood fifty years ago, but do not excite so much attention of the public as theirs did. We are, however, coming to appreciate the art and architecture of this region as never before. It is amazing that a people, who have been described as in the middle status of barbarism, and as living in the communistic state, and having no property in severalty, and resembling in these respects the Pueblo Indians, should prove to have built up such wonderful structures as are represented in these photographs. The arts may have been developed on the spot, and the architecture may have sprung from a social condition different from our own; for there is no trace whatever of contact with other countries, and yet there is nothing in Babylonia or Egypt which is superior to the works presenting the details of the costumes, head-dresses and jewels, and the hieroglyphics than may be seen in these figures. The stone is rather coarse grained sandstone, easily worked, and does not admit of any polish; yet the figures are brought out in a great variety of attitudes, and are true to life. Even the expression of the face is given and the texture of the cloth. If one should judge from the figures engraved upon the lintels and upon the stelæ, he must conclude that the rulers arrayed themselves in the most gorgeous apparel, for the feathers, jewels, fringes, maxtli, tassels, and girdle, form a mass which surrounds and covers the body, so as to make it difficult to find the face at times. Yet the limbs are brought out in relief, and the attitudes are natural and life-like.

It is a study not quite equal to that required in making out the figures in the Boston Library, but it takes much time to trace out the different parts of each costume and to see what the significance of each part is.

It appears that smaller cities display architectural development the same as the larger. In these cities there were temples in which the lintels were sculptured with the greatest variety of figures. There were hieroglyphic stairways; palaces with chambers and sculptured lintels; labyrinths with quadrangles and interior passages; many temples; a great acropolis, crowning the mountain ridge; sepulchral pyramids; temples with stelæ, up to nineteen or twenty in number; sacrificial stones; in all fifty-one structures, forty-two temples, forty-four lintels, besides the labyrinth, and over twenty stelæ. These are represented by forty-six plates and forty-one figures, besides those contained in Part I., and are described in letter-press embracing 134 pages.

The Memoir shows the thorough work that the Peabody Museum is accomplishing, and reflects great credit on Prof. Putnam and the trustees of the University. There is nothing that compares with it, although the sumptous volumes prepared by Mr. Maudslay present the ruins which are already well known in a very attractive form.

DECORATIVE SYMBOLISM OF THE ARAPAHO. By A. L. Kroeber. Reprinted from the American Anthropologist. Vol. III. April June, 1901.

This pamphlet, which is the paper offered for the degree of Ph. D. from Columbia University, is very interesting, and on an interesting and suggestive subject, and may be regarded, perhaps, as a specimen of original research, though it contains both fact and fancy. The remarkable art of the Pacific Coast, from the northwest to the southwest, demands more study than it has received, for there is more conventionalized art there of a primeval sort than can be found anywhere else on the globe. The author has only touched upon the borders of the subject.

Ethnic phenomena do not exist separately. The causitive forces of the human mind cannot be isolated. The technique of art may be so magnified as to be in fragments, and the spirit and the life so deep that mere technique cannot apprehend them. There is no doubt that the history of writing came through the process of making natural objects into conventional symbols, as the author states, and then by a process making these to suggest and convey ideas. The only difficulty is that no one has been able to trace the process through its different stages.

The writer of this review has long held that there was a symbolism which extended from Behring Straits to the Isthmus of Panama, disconnected and in fragments; yet by comparing them and studying the process of growth of the alphabet in other lands, one might reach the key which would unlock the mystery of the glyphs of the Southwest. The pamphlet is, therefore, very welcome as one of the lines which must be followed before their study will be successful. All speculation which is based upon a narrow field of study and observation will prove vain. Primitive races of America possess so many original ornamentations and symbols, that they must be studied, and America must be the field.

Baron Stolpe has been following up the subject of decorative art; others have studied up the subject of comparative symbolism, but the work has just begun. The danger is in narrowing the sphere of study and wandering into speculation; but thorough scholarship and wide observation will bring results.

The calendar system of Central America may have had a distinct and separate origin, but even this needs to be studied by the comparative method. The narrowing process of the specialists is an evil as well as a virtue, for it shuts out the light which comes from other spheres; the microscope and the telescope are both useful, so oriental as well as occidental realms are to be studied together.

RUINED TEMPLES DISCOVERED IN TURKESTAN IN 1901. By M. A. Stein. The Preliminary Report of an Archæological and Topographical Expedition in Chinese Turkestan by the Author. London: Eyre & Spottiswood, 1901.

Colossal statues in stucco, stucco bas reliefs, manuscripts of the fifth and sixth century in sanskrit were found not far from Kashgar; fourteen temples, ruined stupas, dwelling houses, and monastic dwellings were discovered; household articles, canals, fences, documents on wooden tablets, rolls of paper with Thibitan writing were discovered; a ruined quadrangle, 235 feet square, at Rowak, and a stupa court with reliefs in stucco, representing personages, male and female; colossal statues with lofty headdresses and thin drapery, which brought into relief the limbs and forms, showing Greco-Buddhist art, which had probably been introduced from India, were also discovered. These are important finds, as they show how early the mountains of Thibet and the interior of Asia had been penetrated.